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PERSONALITY ASSESSMENT IN THE MENTALLY RETARDED: A VIDEO APPROACH

by

VENTA LOUISE KABZEMS

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Abstract

An alternative mode of personality assessment based upon the Eysenck-Withers Personality Inventory (Eysenck, 1965), measuring extraversion and neuroticism in individuals with developmental disabilities was developed to suit the needs of a Canadian, non-institutionalized population. The first step was the revision of the questionnaire version (Das, Schokman-Gates & Murphy, 1986). Next, a videotaped form of the inventory was developed based on the revised questionnaires.

In Study One, the reliability of the video version was assessed in the measurement of extraversion and neuroticism in a sample of 222 mildly and moderately mentally retarded adolescents. A principal components analysis of the questionnaire yielded factor loadings from .39 to .67 on items conceptually consistent with the label neuroticism and .30 to .74 for the extraversion items. The factor loadings for the video instrument were .33 to .57 and .32 to .60 respectively. Analyisis of variance yielded no significant effects for mental age, mode of presentation or scores on the two dimensions.

In Study Two, the same statistical procedures were followed for a group of 84 vocation~~ally handic~~apped adults. Factorial analysis replicated the results of Study One. The questionnaire form had a range of factor loadings from .48 to .64 on neuroticism and .32 to .71 on extraversion. The factor loadings for the video were .31 to .67 and .34 to .65, respectively. Cross validation of the scale was demonstrated as well as support for the application of Eysenck's trait dimensions to individuals with mental retardation. External validity ratings for the client's self-reports was achieved for the neuroticism subscale only.

In Study Three, the prototypicality of the personality dimensions portrayed in the video was assessed by 24 raters. The raters demonstrated considerable overlap in their perceptions of the portrayals of extraversion and emotional stability. Revisions to the video form were suggested.

The questionnaire version measuring extraversion and neuroticism was found to be reliable. The studies demonstrated that mentally retarded persons were capable of responding reliably to a self-report inventory. Application of Eysenck's theory to the mentally retarded

appears warranted and includes implications for vocational habilitation.

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I. Introduction

Personality measurement and research with mentally retarded (MR) individuals is necessary and important as it addresses three kinds of issues: (1) to test hypotheses and theories of personality, that is, for theoretical purposes, (2) to assist in the selection of individuals who will be more successful (and therefore likely happier) in particular kinds of industrial, social, educational and recreational settings, and (3) to make predictions about an individual's future behavior. It is obvious that a personality theory's range of application is relevant to any assessment of its theoretical or functional utility. If a theory can be used as a tool to guide observation (Marx, 1970) and if such a tool in the study of personality includes within its realm an account of the impact of personality on basic processes such as perception, learning, thinking and memory, then it deserves to be taken more seriously than one that is concerned only with a description of personality.

The model of personality on which the current measurement instruments are based is that of H. J. Eysenck. Eysenck (1967) outlined two personality dimensions, introversion-extraversion (I-E) and neuroticism-emotional stability (N-ES). He has since added the dimension psychoticism to the model. The current research, however, deals only with the two dimensional model in which differences in extraversion are considered as a product of different levels of cortical arousal mediated by the reticular activating system. Introverts are considered to have a higher resting level of cortical arousal and to develop a slower rate of cortical inhibition than extraverts. The differences in neuroticism are considered to be due to different levels of activation of the visceral brain.

The Eysenck model has been widely used in research with normal (i.e., non-retarded) populations. Findings have shown that differences in observable behavior exist among the four groups particularly with reference to the constructs of introversion and extraversion. In the general population, extraverts were found to have better short-term recall that introverts, but over a longer period of retention this was reversed (Howarth & Eysenck, 1968). Introverts tend to take more time to retrieve information from long term memory than extraverts (M. W. Eysenck, 1982). The learning of introverts tends to be more easily disrupted by competing responses and distracting stimuli (M. W. Eysenck, 1982). In studies of academic achievement, mildly neurotic introverts generally attain a higher standing academically than the extraverts (Lynn, 1959; Eysenck, 1971b).

Only a few studies have attempted to use Eysenck's model in research with subjects considered to have abnormal forms of cognitive processing such as the mentally retarded or the mentally ill (MI). Wakefield, Wood, Wallace and Friedman (1978) working with a group of MR adults found that the subjects with either high or low levels of arousal outperformed the moderately aroused subjects. Claridge and Chappa (1973), working with MI subjects found that their subjects also demonstrated optimal performance at very high or very low arousal levels. The findings are contrary to what is known about individuals in the general population who perform better at a moderate level of arousal. Brengelmann (1978) reported that extraversion, as described by Eysenck, was observed to correlate negatively with learning in the mentally retarded.

The need for further investigations into the relationships between personality constructs and learning in the MR is obvious. Stress has been placed on ability and achievement factors and the examination of personality and temperament in learning, neglected, especially in the areas of social and vocational guidance. Part of the difficulty lies in the fact that personality appears to be a broader, more nebulous concept than that of intellectual functioning. Secondly, the models are less testable because personality functioning is less easily quantifiable for no operationally clear theory currently exists.

A major problem in any scheme of personality assessment is the lack of an obvious criterion against which to assess the ability of the test to measure what it claims to be measuring. While personality does change with age, it does not appear to do so in any straightforward way. It cannot be said that ten year olds are less extraverted than twenty year olds, nor is there any obvious group who might agree on a rank ordering of people in terms of personality characteristics.

While many extraverts are seen as talkative and sociable, others are seen as primarily dominating and active or as sociable in some contexts and not in others. There is a continuum of category membership in that some individuals are "better" extraverts than are others (Cantor & Mischel, 1979a). There is no fixed set of criteria with which to compare extraverts on an equitable basis.

Rosen, Clark, and Kivitz (1977) concluded from their review that while most major theoretical models of personality have potential for use with MR individuals, there is little evidence of their actual use. First, these models have been used in a descriptive rather than in a predictive manner. Consequently, their relevance for habilitation services, which are concerned with the prediction of future behaviour, is not readily apparent. Secondly, personality assessment instruments are either difficult to administer or are inappropriate. Most assessment devices require verbal or abstract reasoning skills — skills in which MR individuals are noticeably deficient and therefore do not meet the basic test requirements. Fraser, Leudar, Gray and Campbell (1986) point out the diagnostic limitations of the interview technique with linguistically less able or withdrawn individuals. In their study of psychiatric and behavior disturbance in the MR, the communicative subjects were seen by the interviewing psychiatrists as less intellectually handicapped, less disturbed overall and more reliable in the information they provided.

The current practice of obtaining indications of personality from the results of rating scales of adaptive behavior is unsatisfactory. It relies on adaptive behavior as the only criterion of personal functioning, it is externally rated, and it excludes internal, dynamic considerations (Rosen & Weisz, 1983). Another problem in diagnosis, particularly with respect to adults in training centres for the vocationally handicapped, is that it becomes difficult to distinguish between adaptive behavior that is a function of developmental retardation versus the functional retardation which can occur in mental illness, schizophrenia being just one example (Kay, 1986). Eysenck (1986), himself, points out that personality constructs like neuroticism, for example, and intelligence should be dealt with as separate factors which interact and jointly may determine a person's adaptation to the problems of everyday life.

In terms of personality research with MR individuals, there is the need for a theoretical framework which will describe and predict the personality of the MR person and also for assessment instruments based on a theoretical framework which do not place excessive demands on the verbal and cognitive skills of MR individuals. In order to be scientifically useful, a theory must be testable (Marx, 1970). As new techniques and devices are developed, a previously untestable theory may well become testable or at least generate some testable implications.

In an attempt to meet these criteria, the current researcher has examined the relevance of Eysenck's extraversion and neuroticism constructs for the mentally retarded. Extensive research in the non-retarded population has indicated the efficacy of this approach for explaining and eventually predicting human behavior (Eysenck, 1971a, 1971b, 1971c). A new technique, that of adapting an instrument to a format suitable for individuals likely to be non or poor readers has been tried in the current projects. The current research is motivated by an attempt to apply a relatively well developed theoretical structure to the design of appropriate research tools which could then be applied to an area in need of investigation, which concerns the relevance of the personality dimensions of introversion-extraversion and neuroticism-emotional stability among MR individuals (S. Eysenck, 1965).

II. Selective Review of the Literature

Mental retardation has, understandably, been viewed largely as a matter of intellectual deficit or impairment, so that the behavior of the mentally retarded is primarily attributable to lowered intellectual functioning. Historically, the MR have been referred to as more rigid, neurotic, and extraverted than nonretarded persons, and less achievement oriented (Brengelmann, 1978). Mentally retarded individuals were considered to have highly stereotyped personality profiles and were considered to be oblivious to emotional problems (Menolascino, 1983). Personality research with MR individuals was considered unnecessary. Researchers and clinicians assumed that these people lacked sufficient verbal skills or introspective skills to make accurate assessment feasible (Wachs, 1966). There is a measure of truth in this view as Kodman (1983) unwittingly demonstrated. Kodman administered the California Psychological Inventory and the Minnesota Multiphasic Personality Inventory (MMPI) to a group of 38 institutionalized individuals (mean IQ < 60). Responses to the two instruments were characterized as immature, suspicious, aloof, defensive, secluded, rigid, constricted in thought and action, overly sensitive to the opinions of others and overly judgemental. Kodman concluded that the results of the two personality measures overlapped qualitatively and supported other studies which characterized the MR individuals as "subnormal" in personality assets as well as in intellectual endowment. Kodman's research, potentially valuable in terms of learning more about personality characteristics in a specific segment of the population, failed to take into account the constraints of limited cognitive functioning in response styles, comprehension of the test items, and the effects of the limits of an individual's own awareness when the research instruments were chosen.

Past theoretical frameworks have included the concept of cognitive rigidity, internal-external locus of control, motivational and cognitive theory, psychoanalytic theory, social learning theories and trait approaches to personality. Several consistent conclusions have emerged. One general conclusion is that there is no evidence that mental retardation is associated with any one personality type, such as in Down's Syndrome or hydrocephalus (Silverstein, 1964; Holder & Wankowski, 1980). Confusion may arise as although the groups, such as those with Down's Syndrome, do not appear to have a distinctive personality pattern, they do demonstrate some distinctive cognitive characteristics (Varnhagen, Das & Varnhagen, 1986). The cognitive functioning of the MR unquestionably has a profound effect on their behavior. Yet, by adding the considerations of personality and temperament, vocational behavior prediction, for example, might become more accurate. Performance at many jobs seems to be governed more by personal qualities, such as introversion-extraversion, than by more cognitive abilities (Eysenck, 1971b).

A second conclusion is that the behavior of the mentally retarded, with no documented evidence of organic brain damage, is best understood by the principles found to be generally applicable to nonretarded persons (Zigler, 1966; Balla & Zigler, 1979; Reynolds & Miller, 1985).

In separating the experiential determinants of personality from the developmental determinants, Balla and Zigler (1979) suggest the use of MR and non-MR persons of equivalent developmental level for the purposes of comparison. (Equivalent developmental level is most typically assessed by a mental age score.) As the patterns of motor or intellectual functioning change with time, so do the behaviors measured through personality assessment. Longitudinal studies of personality development have not been carried out in the general population, largely because of a lack of agreement on a theoretical base. Conley (1984) in a review of longitudinal studies of personality found support for the consistency of adult personality characteristics. Of interest for the present research was the finding that two personality dimensions, one related to neuroticism and the other to introversion-extraversion, had moderate longitudinal consistency (approximately .30) and demonstrated convergent and discriminant validity.

Heber (1964) stated the need for comprehensive and longitudinal studies of personality development in the mentally retarded because:

> Not one of such commonly purported attributes of the retarded as passivity, anxiety, impulsivity, rigidity, suggestibility, lack of persistence, immaturity, withdrawal, low

> frustration tolerance, unrealistic self-concept, . . . can be either substantiated or refuted on the basis of available research data. (p. 319)

Studies of personality development in the MR, however, have been hampered by both the lack of a generally accepted theoretical base and the lack of assessment instruments based on a theoretical framework which does not place excessive demands on the verbal and cognitive skills of these individuals. A theoretical model should have heuristic value and considerable flexibility. Thus a framework should be established which provides basic topic areas for consideration and systematic research. The model should have practical implications for assessment and treatment, if required. The model should also be able to generate predictions concerning future behaviors.

A. Perspectives of Personality Development

Psychoanalytic Model

The psychoanalytic model is assumed, by its adherents, to be equally applicable to the functioning of MR persons. In terms of the basic assumptions of the psychoanalytic model, the foregoing statement could be accepted as correct. The functioning of MR individuals fits well with one of the fundamental premises of this model. Behavior is considered to be the result of the psychic events which have preceded it. All psychic events are significant for the individual and their importance is not minimized because a person is unaware of these events. Generally, all individuals are seen as being typically unaware of the factors controlling their everyday behavior.

Basically, the psychoanalytic approach considers three basic structures of the mind, the id, the ego, and superego. The id is present at birth and is the source of all psychic energy throughout one's life. It operates in accordance with the pleasure principle, demanding immediate satisfaction of its drives, it is illogical, it is not reality based and it focuses on the self. The id undergoes little developmental change.

The ego is that aspect of a person's mind which is considered to be in direct contact with external reality. It is the rational portion of one's mind which carries on many of our basic intellectual functions (e.g. memory, stimulus discrimination) and allows one to perceive the consequences of one's behavior. The ego attempts to satisfy the demands of the id in socially acceptable ways. The ego attains its own unique character via development of control over motor functioning, the acquisition of memories, thought and affect (Konarski & Cavalier, 1983).

The superego works in a self-evaluative capacity, exercising a kind of moral control or conscience. The superego also manages one's aspirations concerning the way things should be.

Progression through the various stages outlined in the psychoanalytic model is considered to be slower and directly related to the individual's level of of cognitive development. The mentally retarded are seen as more likely to become fixated at a particular stage and thus display the character disorders specific to that stage. For example, an individual fixated at the oral stage would demonstrate passivity and dependency.

From the psychoanalytic viewpoint, individuals with MR would appear highly susceptible to emotional disorders and social maladjustment. Many of the behaviorial correlates of mental retardation such as impulsivity and distractibility would be seen as a reflection of inadequate ego development. In addition, the number of disruptive factors surrounding a person with MR such as parental acceptance and familial interactions offer many options for interpretation using the psychoanalytic model.

From the psychoanalytic perspective, the MR individual is perceived to suffer from inadequate ego development, a result of the individual's cognitive deficits (Balthazar & Stevens, 1975). The slower progression through and poorer resolution of the stages of development by MR individuals may be only due in part to their cognitive disabilities. Familial fostering of dependency may be a factor. The tendency of MR individuals towards fixation at the earlier levels of development likely results in the persistence of immature ways of obtaining satisfaction and immature ways of interacting with the environment. One result of this low level of psychic functioning, according to the theory, is that a large amount of psychic energy is used, leaving little energy for the development of more mature forms of behavior and higher order cognitive functions. Secondly, the imposition of rigidity provided by fixation facilitates regression and prevents more mature coping with future events (Balthazar & Stevens, 1975). Limited cognitive functioning results in limited environmental testing which interferes with the development of higher cognitive functions such as language and moral development. It would be anticipated that ~~immature ego~~ functioning would only compound the individual's cognitive difficulties.

The psychoanalytic model is based on a comprehensive conceptual system. This theory presents difficulties in the distillation and testing of hypotheses due to its imprecision and ambiguous explanations. With respect to the study of personality in the MR and non-MR alike, many of the theory's features cannot be observed directly and faith is placed in the accuracy of self-report measures.

While the theory itself appears to have relevance for the MR, it has major therapeutic limitations. For example, the determination of unconscious processes is generally made using indirect verbal techniques such as free association and dream analysis, both of which are of limited utility when dealing with clients who often exhibit expressive language difficulties.

Concrete thinking is an obstacle to an insight oriented therapeutic technique based on metaphorical communication. It is therefore important to assess cognitive ability and weigh the consequences of cognitive style for therapy (Weiner & Crowder, 1986). Weiner and Crowder used the Comprehension and Similarities on the WAIS-R (Wechsler, 1981) to assess their clients' level of abstract reasoning. They noted that:

> "Whether caused by cultural deprivation, lack of education or limited intellectual endowment, our patients' performance on these tests suggests that they have difficulty with abstract reasoning. Psychotherapists, by contrast, reason by analogy and frequently communicate through simile and metaphor, expecting patients to understand abstract contingent relationships and the "as if" explicit in similes and implicit in metaphor. (p. 18)

Another shortcoming of the psychoanalytic approach to therapy is the failure to recognize that individuals with MR, partly due to differences in cognitive styles, may adapt and react to environmental events differently from non-MR individuals. It may not therefore be advisable to conclude that the dynamics leading to healthy or unhealthy modes of psychological functioning in the MR are identical to those in non-MR persons.

The psychoanalytic view does offer a developmental approach to personality but it fails to address the broader aspects of social learning. Assessment devices and treatment programs based on traditional psychoanalytic theory are of little use with the MR due to their need for self-awareness and verbal expression skills. (Psychotherapeutic techniques which are more suitable for the MR and minimize the necessity for verbal communication have been developed. They include play therapy and art therapy.) Psychoanalytic techniques do not offer a method for predicting future behavior because one of the postulates in the psychoanalytic perspective is that understanding the pattern of behavior permits the prediction of behavior and it is not known to what extent the MR "understand" their own behavior in a social context. Finally, psychoanalytic techniques do not easily lend themselves to research possibilities with the mentally retarded.

Learning Model

The basic premises of this model are that all human beings are capable of learning, that learning shapes human behavior, and that mentally retarded individuals learn in the same manner as nonretarded individuals. Classical learning formulations place great emphasis on conditioning as a basic process in learning. In terms of personality development, behaviors including maladaptive behavior are acquired (or not acquired) by the same principles.

The individual with an organic or biological abnormality is likely to have an altered response function affecting stimulus-response relationships and ultimately the development of an appropriate behavioral repertoire. Injury to the central nervous system is seen as restricting the development of the individual by restricting the opportunities for interactions. One kind of restriction, obviously, is any sensory impairment. Such impairments result in developmental restrictions because the affected individual is not capable of responding in the usual way, that is to say, the individual's environmental interactions may be inappropriate or limited.

The development of personality is affected by the individual's reinforcement and discrimination history. It does not need to be stressed that an individual's behavior may be determined, in part, by his experiences with those with whom he has the closest ties such as his family or immediate care-takers (Kiefer, 1949; Zigler, 1966; Balla & Zigler, 1979). If reinforcement is infrequent, insufficient, or administered noncontingently or if response opportunities are limited it would be expected that the MR individual would not develop a useful repertoire of personal and social skills. Personality development may be affected by the inappropriate use of punishment. Behaviors needed for social adjustment, for example, may be suppressed or avoidance and withdrawal behaviors may be strengthened.

Learning, in terms of personality development, may be seen as a function of cognitive responses to external stimuli. For example, the reinforcement histories of mildly retarded adults residing at community based intermediate care facilities are heavily dominated by the contingencies of extrinsic reinforcement which affect their motivational orientation (Haywood & Switzky, 1985).

Research based on the social deprivation construct has shown that social deprivation may result in a heightened motivation to interact with a supportive adult (Zigler, 1966; Balla & Zigler, 1979). The apparent increased motivation to seek social reinforcement stemming from a history of social deprivation does seem congruent with the sort of behavior seen in some MR individuals, that of actively seeking attention and affection. The MR are also less likely to trust their own resources in problem solving and rather rely on possible solutions presented by external sources. This reliance on outside influences is often detrimental to the development of problem solving skills and strategies. The behavior of the mentally retarded may also be interpreted as trying to avoid failure rather than attempting to achieve success.

Dependency on reinforcement from others may stem from a background of social deprivation or the lack of appropriate opportunities for interaction. Closely allied with the concept of dependency in personality development is the reliance which many MR persons place on external cues to guide their behavior. This aspect of learning has been described as outerdirectedness by Balla and Zigler (1979) but could also be viewed within the concept of locus of control as proposed by Rotter (1954). Rotter viewed behavior as a function of reinforcement, but included the idea that the degree to which people believe their lives to be under their own control as an important dimension of individual variation. Thus, locus of control (internal or external) is regarded as a characteristic attitude towards the world, referred to as generalized expectancy. Generalized expectancies have important modifying effects on the expected relation between behavior and reinforcement. First, people have to believe that they have the capability to perform the necessary behavior to earn the reinforcement, and also to regard the reward as worth the effort before they will act. Secondly and even more important, they have to expect that when they behave appropriately they will actually receive the desired reward. Thus, whether or not a behavior occurs depends on these three conditions being met: a person must have the capacity to produce the desired behavior, must regard the reward as desirable, and must expect that the reward will be received if the behavior is produced. Mentally retarded individuals, however, may not have the capacity to produce the desired behavior due to lowered intellectual functioning or maladaptive behavior and for the same reasons may not be able to predict future events or consequences as a result of their behavior. As the work of Haywood and Switzky (1985) points out, perhaps due to their life circumstances, the most internally motivated subjects in their study had intrinsic motivation scores on the assessment device which were about the same as the mean intrinsic motivation scores of extrinsically motivated subjects in an earlier study of nonretarded children.

Balla and Zigler (1979) refer to the low expectancy of success and high expectancy of failure in many MR individuals. These expectancies have been viewed as a consequence of frequent confrontations with tasks with which the MR person is ill equipped to deal. It has been hypothesized that the effects of prolonged failure experiences are pervasive and may potentially lead to anxiety disorders (Ollendick & Ollendick, 1983).

There are several limitations to the learning models. Before learning can occur, elements of the correct response must be present. Responses are continually being shaped and modified becoming more complex and symbolic in nature. The MR individual is generally found to have a limited response repertoire which can limit the acquisition of new chains of behavior. It is possible that because of their congitive deficits, MR individuals sometimes adapt and react to environmental events differently from their non-MR peers (Balla & Zigler, 1979).

A second major limitation of the learning perspective concerns the learning of cues. If an individual is to learn when and where to respond appropriately, attention must be paid to both external and internal cues. It is well known, for example, that almost no vicarious social learning occurs among mentally retarded pre-schoolers who have been integrated into regular pre-school programs. Retarded individuals frequently have behavior difficulties such as inappropriate attention which interfere with the learning of cues.

The learning models of personality, while heuristically useful, are of limited predictive utility for individuals who are mentally retarded.

Experiential Model

Lower cognitive functioning may increase the risk of emotional disturbance because it creates special adjustment problems while limiting the individual's ability to solve these problems (Reiss, Levitan, & McNally, 1982; Jacobson, 1982). Inability to perform self help skills for example, may have a profound and negative effect on self-confidence, personality, and emotional stability. However, no research has been performed that relates deficiency or proficiency in these skills to psychological adjustment (Matson, 1985).

The construct of self-concept has received little attention in the mental retardation literature. One reason for this lack of attention to measures of anxiety or self-concept may be a view that MR individuals lack sufficient verbal fluency and/or introspective skillls to make a valid measure of the construct possible. This difficulty has not proved to be insurmountable to investigators who have utilized the self concept construct and there is at least some evidence for its validity in groups of MR persons (Reynolds, 1979; Sigelman et al., 1980; Zetlin, Heriot, & Turner, 1985; Zisfein & Rosen, 1974). Another possible difficulty, shared with self-concept research in the nonretarded population is the number of different measures that have been employed.

There is some tenuous evidence that MR persons have more adverse self-concepts than do non-MR persons. However, the factor of intellectual level has generally been confounded with special class placement or institutionalization making any firm conclusions impossible. As well, it is difficult to demonstrate in the MR that low self-concept leads to low performance. It might be interesting to investigate the growth of self-concept from a developmental phenomenon of increasing cognitive differentiation.

Much of the work of developmental theorists in the field of developmental handicap has focused on motivational differences between MR and non-MR persons (Zigler, 1966; Balla & Zigler, 1979; Haywood & Switzky, 1985). It appears that often MR individuals are more interested in interacting with an attentive adult in a testing situation than they are interested in solving the given problem. Heber (1964) noted that the observed differences in response style, most notably that of cognitive rigidity in mentally retarded individuals, could be better explained in terms of motivational factors.

Another construct that has received relatively little attention in the area of MR in comparison with its relative importance in the general personality literature is that of anxiety (state and trait). This inattention is somewhat surprising since it has long been known that anxiety affects performance on a wide variety of tasks, serving to facilitate performance under certain conditions and to debilitate it under others.

An anxiety state is a cluster of symptoms based on fear, the source of which is not recognized by the individual (Marks & Lader, 1973). State anxiety may be separated from trait anxiety. State anxiety refers to anxiety felt at a particular moment whereas trait anxiety refers to a habitual tendency to be anxious over a long period of time (Marks & Lader, 1973). Since the experience of anxiety is considered a part of normal behavior, as is the employment of a coping strategy (i.e., defense mechanism), anxiety is seen as a problem only when it goes beyond the normal response to stress and handicaps the everyday functioning of an individual. It may be that the social experiences of the retarded individuals, such as excessive failure or social deprivation, are important factors in their reported higher incidence of anxiety (Balla & Zigler, 1979; Menolascino, 1983; Ollendick & Ollendick, 1983).

The question of depression among the mentally retarded is mentioned in the literature based on the same social experiences considered to be anxiety producing. Assessment of depression (anxiety and self-concept) should ideally be multimodal in nature. Assessment needs to focus on both overt behaviors and cognitions. The main problem at this time is that self-report measures are the most highly developed forms of depression assessment. They require considerable self knowledge, reading and comprehension skills which make them unsuitable, in their present form, for productive use with the mentally retarded.

The presence of personality disorders in approximately one-fifth of some subject populations (Eaton & Menolascino, 1982; Benson & Reiss, 1984) suggests that this group of disorders is not an infrequent accompanying psychological handicap for individuals with mental retardation. Some debilitating psychiatric problems, however, may appear less significant when compared to the generalized effects of mental retardation (Reiss, Levitan & Szyszko, 1982). It is likely that due to their higher incidence of central nervous system dysfunction and lowered interpersonal coping abilities, retarded persons are at greater than average risk for developing associated psychological disorders (Eaton & Menolascino, 1982; Russell & Tanguay, 1981).

Biological Model

Research on the relations between personality traits and basic psychological processes have been particularly important to H.J. Eysenck, who sees these studies as a technique for discovering the biological basis of personality. Eysenck has consistently been interested in the possibility that observed differences in behavior might be inherited. An important aspect of the interpretation of the personality dimensions of extraversion and neuroticism has always been an inquiry into their biological bases. It was Eysenck's hypothesis that individuals differ in their excitation-inhibition balance and that this difference is mediated by something in the central nervous system. Currently, his biological theory emphasizes differences in arousal level rather than differences in inhibition level. The biological constructs have given his theory unique qualities.

In the general theory, physiological arousal stemming from the ascending reticular activating system (ARAS) is said to steer introverted and extraverted behavior while neuroticism reflects activation arising from the limbic system, often referred to as the emotional brain.

The general theory of extraversion states that differential states of arousal can account for an individual's position on the I-E axis continuum. Individuals with an innate (genetically based) predisposition to resting patterns of heightened will tend to develop characteristics of introversion whereas individuals predisposed to resting patterns of lowered arousal will develop characteristics of extraversion. It is also a part of his theory that the varying states of arousal are related to the activity of the ARAS. This part of the theory is not directly testable using human subjects. The involvement of the ARAS in arousal has been deduced from animal experimentation (Eysenck, 1967) and can be traced through Pavlov's conditioning investigations and Hull's concepts of drive and habit.

The concept of cortical arousal has raised a great deal of criticism. The criticism is directed at the various definitions of the term itself and at the actual physiological measures of arousal employed which frequently have only low correlations. For example, arousal may refer to responsiveness, attention to sensory input or even the behaviorial intensity of a response. Eysenck (1976) stresses two major points regarding his theory and the association of cortical arousal with I-E. First, his theory refers to the resting state (but levels of arousal can vary under different conditions) and secondly, a resting state for one may not be a resting state for another. Basically, then, Eysenck views arousal as a physiological state resulting from an increased level of activity in the ARAS.

Eysenck (1967) also used the term activation by which he referred to autonomic activity mediated by the limbic system and coordinated by the visceral brain. The introspective correlate to arousal in Eysenck's terms is alertness and to activation, emotion.

It is suggested that cortical arousal can be produced in two ways. It may be a result of sensory stimulation or of higher mental processes, in which case there need be no arousal of the visceral brain, or it may be produced by emotion. In this latter case, there is both cortical and autonomic arousal. Autonomic activation and cortical arousal are, therefore, partially independent, and Eysenck cautions against any assumption that such measures of cortical arousal such as EEG or GSR can be used as direct indices of emotional involvement. Individual differences in neuroticism are related to differential thresholds of arousal in the visceral brain while behaviorial differences with respect to extraversion are related to differential thresholds in various parts of the ARAS.

In the laboratory setting, tests are designed to produce a minimum of emotional activation thus, the personality dimension of neuroticism must be kept in mind and its possible interaction with I-E. Neurotics have a higher level of chronic visceral brain activation than do stable individuals. Under conditions of extreme emotional arousal, the separation between the I-E dimension and the N-ES dimension breaks down. The visceral brain can supplement the ARAS arousal of the cortex, evoking in the neurotically disposed individual an even higher level of arousal than would otherwise be anticipated.

In effect, the dimensions of introversion-extraversion and neuroticism-emotional stability lose their independence when the individual is emotionally active (Eysenck, 1967). In cases where the level of emotional activation is intense, cortical arousal must also have occurred. Thus in Eysenck's dimensional system, the separation of intellectual arousal from emotional activation holds only for stable individuals. Neurotics evidence a capacity for emotional arousal to stimuli that would be only cortically arousing to a stable individual. It appears that some of the most difficult conceptual problems for future personality theories lie at the point where these two levels of neural function, arousal and activation, meet (Claridge, 1986).

Eysenck's theory places considerable weight upon the notion of conditionability as a general personality feature. This is attributed to the relatively high level of arousal in introverts. However, research has demonstrated that introverts seem to condition better than extraverts only under certain conditions, namely those of under-arousal whereas under conditions of over-arousal, extraverts perform comparatively well (Eysenck, 1967). Eysenck, on the basis of his own research and that of others has used as explanations for these differences in conditionability ideas which include the involvement of the visceral brain as well as the ARAS, the intensity of the stimuli, and the organization of conditions which are neither too boring nor too arousing (optimal resting state).

In summary, Eysenck (1967, 1976) has revised and extended his basic theory by suggesting specific relationships between the personality dimensions of I-E and the ascending reticular activating system of the brain. He has also rooted the dimensions of N-ES in structures of the central nervous system. His general argument for genetic predisposition to the personality types is that the introvert, for example, inherits a nervous system easily able to form conditioned responses and if this personality type also inherits an emotionally reactive autonomic nervous system he or she will be in an ideal position to acquire strong neurotically disposed responses. In effect the introvert possesses a nervous system predisposition to be acutely sensitive to all forms of stimulation and therefore to become inhibited and withdrawing in the presence of a demanding social environment.

The extravert, by contrast, inherits the type of nervous system that is not easily conditionable, not especially sensitive to stimulation and not prone to withdrawal from a demanding environment. In fact, the extravert is a stimulus seeker because his or her relatively high levels of inhibitory cortical processes demand constant novel and potent input of external excitation.

Ever since the introduction of the biological foundations of Eysenck's theory, there has been a continuing attempt to try to construct the optimal conceptual nervous system which can account for the individual differences encompassed by the I-E and N-ES dimensions of personality. Given that the two processes of arousal and activation are assigned equal status, it also allows for the infinite permutations of them demanded by the orthogonal structure of the personality dimensions.

While I-E and N-ES may not map directly on to the nervous system in quite the way Eysenck believes, they nonetheless provide a firmly established descriptive framework within which to work; if only by offering a set of well defined criteria by which to select individuals for study (Claridge, 1986). Practically speaking, we know precious little about the relative biological status of individuals and the various possible combinations of scores on the I-E and N-ES dimensions.

Several omissions from this theory are worthy of note. First, Eysenck has pursued an empirical, experimentally based model of personality. In pursuing this line of investigation, he has neglected feelings, motives and other experiential data which some personologists consider to be the essence of personality. Secondly, the higher mental processes have not been implicated in his theory. There likely exists a great source of variation among individuals due to the difference in the organization of the higher levels of the central nervous system which, through language, thought, memory and other cognitive processes shapes the expression of the underlying traits. Eysenck has preferred to use biological explanations and conceptual nervous system outlines tied to a behavioral framework. Traditionally, biological models have utilized only low level brain structures, possibly because they mostly rely on animal data.

The theory also leaves several gaps in its application to individuals with mental retardation. For example, Luria (1963) suggested that the MR are less responsive to stimuli than are non-retarded individuals. Do these MR individuals have deficits in the ARAS? Is it associated with organic development? In vigilance tasks, the MR seem to be less sensitive to the cues or warning signals. Could it be inferred that the MR are deficient in attaching signal value to stimuli?

Attempts to relate the so called higher mental processes to the higher nervous system processes that underlie them must be must be the path of choice in the search for a more complete biological model of personality, given that the differential functioning of the two hemispheres is already implicated in psychological functioning. The biological model, as it stands, is not directly testable. It does offer a number of investigative possibilities.

B. Personality and Behavior in the Mentally Retarded

Over the years there have been many different and often contradictory suggestions regarding the supposed personality characteristics of MR individuals. The general conclusion appears to be that there is no evidence that developmental handicap is associated with any one personality type. Most researchers would admit to the likelihood that mentally retarded individuals both demonstrate the full range of personality traits and characteristics observed in the non-retarded population as well as being susceptible to the full range of psychological disturbances.

By whatever criteria one wishes to apply, there are variations in degrees of success and failure in areas of social functioning, vocational adjustment and so on. In many instances, it is desirable to be able to predict potential successes or failures. The predictive validity of the IQ for eventual vocational and social adjustment in the MR has never been very high (Cobb, 1972).

The second observation is that success or failure is not simply inherent in the nature of the individual, but is a result of interactions among at least three sets of variables, the properties of the person, the environmental interventions, and the social accommodations.

At the present time, no reliable means of predicting success or failure on the basis of personality factors has been established. Facets of personality such as self-concept, motivation and anxiety are extremely complex and are strongly influenced by variables such as parental influences, peer-group pressures, ethnic background, and social class to name only a few. Everyone agrees on the importance of personality factors in determining adult adjustment, but no one has yet established valid and reliable methods of measuring and predicting them with developmentally handicapped individuals. The importance of investigating personality factors lies in the relationship of these constructs to the psychological adjustment of the individual. Ideally, direct or "one to one" relationships ought to exist which can then be shown to apply to the case of a specific sub-group or population.

It has been established that the components of personality are significantly interrelated with adaptive behavior and adjustment (Balthazar & Stevens, 1975; Greenspan, 1979; Reynolds & Miller, 1985). The term adaptive behavior encompasses social role expectations and performance, social competence, social intelligence, personality, and motivation. Social adjustment may suffer not so much through lack of intelligence, but because of social pressures or personality problems (Farber, 1968). It must also be asked how the social behavior patterns of MR persons are affected by cognition as well as personality.

The relationships between personality and real life behavior can be explored in two separate but related ways: (1) a theory based understanding of personality can be used to predict the social behavior of various personality types, or (2) an assessment can be made of the relevance of personality to individual differences in behavior in social, occupational and educational settings (Eysenck & Eysenck, 1985). Consideration has to be given to the likelihood that important aspects of social or workplace behavior are not simply affected by one facet or dimension of personality, but rather a combination of personality dimensions and the situational components. As Eysenck and Eysenck (1985) point out, it is misleading to try to necessarily separate personality and social behavior as personality may determine, at least in part, the social situations (and by extension, work situations) in which individuals find themselves. In the case of the mentally retarded, they may suffer in work placements because the current vocational training systems in place in most centres do not allow for a wide range of placement choice on the part of the client.

Social skills and developmental delay have been two conditions linked to later psychopathology. However, these areas deserve further study with respect to the ramifications for quality of life. Matson (1985) would argue that emotional problems can affect the quality of life just as substantially as physical deformities or other birth defects, and thus should receive similar emphasis and attention in the developmentally handicapped. Yet, it would be misleading to label a MR individual as emotionally disturbed simply because the individual's emotional life was more consistent with his mental rather than his chronological age (Reiss et al., 1982).

To summarize, the lack of appropriate assessment devices as well as the lack of experimental data bearing on the relationship between personality traits or dimensions and the behavioral efficiency of mentally retarded persons is remarkable in view of the generally acknowledged importance of personality factors in problem solving, social adjustment and the acquisition of vocational skills appropriate to job placement. (The terms 'trait' and 'dimension' will be used interchangably to refer to internal characteristics which are capable of distinguishing between individuals in the sense that they are believed to be present to a greater extent in some people than in others.)

C. Operationalizing the Models

Which theory offers the best description of personality? There are no simple rules for assessing the relative merits of the numerous personality theories and certainly none upon which theorists would agree. Therefore, the current research has chosen to use two different approaches as each shows its own advantages and as both have demonstrated heuristic value in the amount of significant research which they have generated.

The Biological Model: Questionnaire Format

Eysenck's descriptive model was first put forward in 1947. The current research however is based on the model descriptions provided from 1967 onward (see Figure 1).

Eysenck's theory of personality may best be described as an hierarchical model having a minimum of three levels. At the observable level (primary factor level), the personality types of introversion (I), extraversion (E), neuroticism (N) and emotional stability (ES) are described in terms of measurable traits such as persistence, sociability, anxiety and so on. These dimensions are basically independent of one other. These traits are usually measured with paper and pencil instruments.

Eysenck describes the dimensions of I-E and N-ES as:

> Extraversion-Introversion
>
> High E scores are indicative of extraversion. High scoring individuals tend to be outgoing, impulsive, and uninhibited, having many social contacts and frequently taking part in group activities.
>
> The typical extravert is sociable, likes parties, has many friends, needs to have people to talk to, and does not like reading or studying by himself. He craves excitement, takes chances, often sticks his neck out, acts on the spur of the moment, and is generally an impulsive individual. He is fond of practical jokes, always has a ready answer, and generally likes change. He is carefree, easygoing, optimistic, and likes to "laugh and be merry." He prefers to keep moving and doing things, tends to be aggressive and to lose his temper quickly. His feelings are not kept under tight control, and he is not always a reliable person.
>
> The typical introvert is a quiet, retiring sort of person, introspective, fond of books rather than people; he is reserved and distant except to intimate friends. He tends to plan ahead, "looks before he leaps," and distrusts the impulse of the

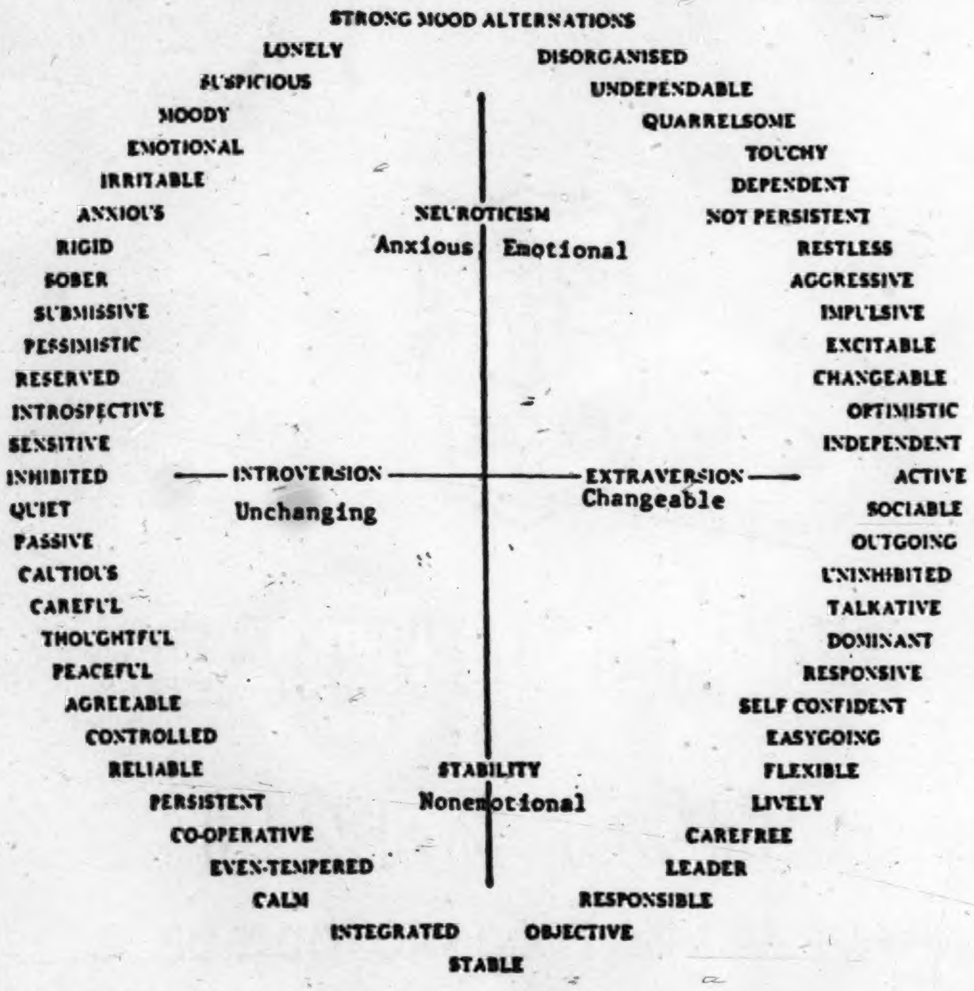
STRONG MOOD ALTERNATIONS
LONELY
DISORGANISED
SUSPICIOUS
UNDEPENDABLE
MOODY
QUARRELSOME
EMOTIONAL
TOUCHY
IRRITABLE
DEPENDENT
ANXIOUS
NEUROTICISM
NOT PERSISTENT
Anxious
Emotional
RIGID
RESTLESS
SOBER
AGGRESSIVE
SUBMISSIVE
IMPULSIVE
PESSIMISTIC
EXCITABLE
RESERVED
CHANGEABLE
INTROSPECTIVE
OPTIMISTIC
SENSITIVE
INDEPENDENT
INHIBITED
INTROVERSION
EXTRAVERSION
ACTIVE
Unchanging
Changeable
QUIET
SOCIABLE
PASSIVE
OUTGOING
CAUTIOUS
UNINHIBITED
CAREFUL
TALKATIVE
THOUGHTFUL
DOMINANT
PEACEFUL
RESPONSIVE
AGREEABLE
SELF CONFIDENT
CONTROLLED
EASYGOING
RELIABLE
STABILITY
FLEXIBLE
PERSISTENT
Nonemotional
LIVELY
CO-OPERATIVE
CAREFREE
EVEN-TEMPERED
LEADER
CALM
RESPONSIBLE
INTEGRATED
OBJECTIVE
STABLE

Figure 1. Personality classification

Adapted from Eysenck; 1967, 1970, 1971.

> moment. He does not like excitement, takes matters of everyday life with proper seriousness, and likes a well-ordered mode of life. He keeps his feelings under close control, seldom behaves in an aggressive manner, and does not lose his temper easily. He is reliable, somewhat pessimistic, and places great value on ethical standards.
>
> Neuroticism
>
> High N scores are indicative of emotional lability and overreactivity. High scoring individuals tend to be emotionally overresponsive and to have difficulties in returning to a normal state after emotional experiences. Such individuals frequently complain of vague somatic upsets of a minor kind, such as headaches, digestive troubles, insomnia, backaches, etc., and also report many worries, anxieties, and other disagreeable emotional feelings. Such individuals are predisposed to develop neurotic disorders under stress, but such predispositions should not be confused with actual neurotic breakdown; a person may have high scores on N while yet functioning adequately in work, sex, family, and society spheres.
>
> (Eysenck & Eysenck, 1968, p. 627)

People with high neuroticism scores would appear to have as their main distinguishing characteristics, a marked tendency to experience strong mood alterations, to become disorganized under stress, and to find it stressful to adapt to new situations, including in particular those situations which involve interaction with other people, while the individual high on extraversion is active, independent, outoing and optimistic. Anxiety measures have been shown to correlate .6 to .7 with measures of neuroticism (Eysenck & Eysenck, 1985). Most people fall somewhere in between the extremes on these dimensions since the scales are conceived of as being bi-polar in the sense that they are designed to facilitate arranging people in order between two opposing extremes. Thus, the term neuroticism refers to the name given to one end of a measuring scale, the opposite end of which is concerned with emotional stability. Similarly, the opposite to extraversion is defined as introversion.

The neutral point on all Eysenck's bi-polar dimensions is defined in terms of the relevant population mean. Since the distributions concerned seem all to be bell shaped, it follows that extreme introverts or extraverts, for example, are comparatively rare, while the majority of the people tend to one end of the scale or the other only to a modest degree.

At the second level of the hierarchy, performance on laboratory tasks like motor movements, conditioning, and vigilance is used to define the dimensions of introversion and extraversion. Specific predictions for differential performance on a variety of these tasks are made on the basis of the hypothetical third level.

The third level, the causal factors in the theory, are rooted in biology and are highly complex as they include physiological functioning and genetic predispositions. The biological aspects of the theory attempt to lay the basis for things such as the assumed differences in the conditionability of introverts and extraverts for example.

The physiological basis for this difference in conditionability has been related to the functions of the ascending reticular activating system in the brain. The main function of the ARAS appears to be to maintain the individual in an optimum state of arousal or alertness.

Emotionality or neuroticism is related to the reactivity of the autonomic nervous system. Individuals with more labile autonomic nervous systems are liable to respond strongly to unpleasant or frightening experiences by increases in heart rate, muscle tension, etc. Individuals high on neuroticism will tend to have low thresholds of emotional arousal. This will lead to the more frequent activation of their autonomic nervous systems which in turn will trigger the RAS. Thus the RAS is assumed to be more often in a state of arousal for individuals who score highly on the neuroticism dimension. This means that such individuals will tend to resemble introverts who are generally more aroused than extraverts.

The ease and stability with which an individual forms conditioned responses is considered to be related to the balance between excitation and inhibition processes within the central nervous system. The learning of stimulus-response connections is favored by a strong and rapid buildup of excitation in the nervous system and a tendency for inhibition to develop slowly and weakly. Introverts are considered to have inherited such a nervous system and are, therefore, capable of strong and rapid conditioning. Extraverts, on the other hand, are considered to form conditioned responses slowly and weakly. However, not all studies of conditioning have found the expected differences between introverts and extraverts, that is, that introverts condition more easily and in a more stable fashion when compared with extraverts. This may be even more true of individuals such as the mentally retarded who, in addition to recognized atypical forms of cognitive processing, may have demonstrable central nervous system impairment.

A major source of error in testing Eysenck's theory is to treat the trait concepts in isolation, disregarding the fact that [illegible] individual is a pure exemplar of a trait category and that personality concepts are likely to interact with a person's ability level.

Secondly, a list of questions to which an individual simply answers 'yes' or 'no' can hardly be expected to do justice to all the complexities of personality. For example, there is the question of whether or not the responses to the neuroticism items are affected by the subject's concerns about social desirability.

Thirdly, Eysenck's theory tends to emphasize the role of classical conditioning in social behavior to the neglect of social learning variables. However, the theory may be better viewed as an attempt to bridge the gulf between the study of individual differences in personality and the experimental investigation of conditioning, learning, and perceptual processes.

Eysenck's theory has been useful in generating testable predictions. The theoretical framework of the model allows the researcher to address the question of the relationship between personality variables and task performance. Eysenck's theory has been related to a vast range of phenomena including socialization, conditioning, and cortical activity. Secondly, the basic theory considers the dimensions introversion-extraversion and neuroticism-emotional stability, constructs which appear in most writings on personality (Brody, 1972). As Sells (1973) pointed out, the greatest amount of variance in factor analytic studies has been accounted for by three traits which can be recognized by the titles emotional stability, social extraversion and consciousness (which implies a kind of moral effect on behavior).

Fourth, Eysenck (1970) has hypothesized that intelligence is uncorrelated with the major personality dimensions of E and I. This view has been supported in several studies (Eysenck, 1971; Saklofske, 1985) and is of particular relevance to the present study as it deals with MR individuals.

Finally, extensive research in the general population has indicated the efficacy of the Eysenck model for explaining and predicting human behavior (Eysenck, 1971b). Results of studies concerning prediction of scholastic attainment, based on Eysenck's model and employing subjects considered to have abnormal forms of cognitive processing such as the MR (Wakefield, Wood, Wallace, & Friedman, 1978) and the mentally ill (Claridge & Chappa, 1973) found that their subjects demonstrated optimal performance at very high or very low arousal levels. The optimal performance for non-handicapped subjects was at the middle level of arousal. The general finding for the adult population is that the anxious introvert generally attains a higher standing academically than the extravert (Lynn, 1959). Brengelmann (1978) reported that extraversion, as measured by Eysenck, was observed to correlate negatively with learning in the mentally retarded.

Empirically, Eysenck's model has been shown to have relevance in explaining a wide variety of human behavior. This approach also permits the feasibility of examining whether influential personality factors in the general population have the same relevance for an MR population. In habilitation service programs, more appropriate client-task or client-job matching may be one result of the application of this model. For example, introverts may be better placed in situations involving repetitive tasks or, it could be predicted that those individuals who score very high on neuroticism would find adjustment to new job demands difficult.

The Experiential Model: Video Format

The Prototype Approach

The prototype approach (Cantor & Mischel, 1979a, 1979b) is viewed as an alternative to the factor analytic trait approach of Eysenck and others, to the categorization of persons. The prototype approach is applicable to both persons and situations. It allows for the construction of orderly taxonomies containing categories at different levels of abstraction — from superordinate (the perfect example or highest level of abstraction) to middle and subordinate categories (akin to the types in Eysenck's hierarchical model). Gains and losses at different levels in the hierarchies can be predicted and explained on the basis of cognitive theories of the categorization of everyday objects. (Imagine the superordinate category of "chair" and compare that with the knowledge or appreciation of the superordinate category "extravert"). The prototype approach is presented as an alternative, ecologically based method of personality assessment which incorporates the principles of cognitive processing with respect to how people mentally organize categories (Rosch, 1978), including personality categories (Cantor & Mischel, 1979b; Broughton, 1984; Broughton, 1986).

Rosch (1978) clearly states that the prototype should not be confused with any specific category member nor is it tied to any particular form of mental representation. Rosch also avoids describing or alluding to specific processes for judging category membership, nor does she claim to know the processes by which prototype is acquired.

Investigations (Cantor & Mischel, 1979a, 1979b; Broughton, 1984; Furnham, 1984) suggest that individuals possess well developed, implicit ideas about the traits and behaviors that go together in categorizing certain personality types. For example, most people would describe the prototypic extravert as a generally outgoing, socially talkative and perhaps confident or dominating individual. As Semin, Rosch and Chassein (1981) pointed out, scientific and common sense conceptions of personality overlap, at least in their 'phenotypic' accounts of personality.

The prototype approach assumes category membership is based on a number (never explicit) of correlational attributes. A specific list of qualifications for category membership is not required and thus borderline instances or weak exemplars can be accounted for. The prototype approach also makes sense of individuals who do not invariably exhibit a characteristic mode of behavior as outlined by a trait. Several lines of interpretation are then available. The person under observation, that is the target, may exhibit the trait in a relatively wide variety of situations or the target may demonstrate that behavior to an extreme degree when it is exhibited. This would take into account the example of an extravert at a party where 'extreme' behavior may be exhibited versus talkativeness being displayed in the grocery checkout line, during a class and so on.

A great deal of effort has been expended to try to improve the techniques of scale construction in the hope of increasing the predictive efficacy of measurement devices. Little effort has been expended to try to use proven theoretical constructs to devise new assessment instruments specifically suited to the needs of special groups within the general population who may have difficulty responding to the assessment devices as they are now constructed. For example, the extension of a proven personality theory to the mentally retarded may lead to more socially relevant goals including new methods for vocational and habilitation training. Most experimental work in the area of mental retardation is focused on the 'applied' area, that is, it is based on operant conditioning or behavior modification techniques. The work has proven useful but lacks the directional impetus of a generalized theoretical backing.

The development of a videotape version of a commonly used, questionnaire format personality inventory has incorporated many of the conditions known to improve the responsiveness and the quality of the responses obtained from mentally retarded individuals. Video (a.k.a. television) is a most appropriate medium for an audience which spends a great deal of its leisure time in front of a television set. Subjects of limited verbal ability and intelligence have been shown to be able to generalize rules of behavior from ideas and stories presented visually (Driscoll. 1968). Video is considered a more appropriate test modality as mentally retarded persons tend to rely on visual-spatial and visual-auditory stimuli in information processing (Ashman, 1985). In terms of information processing, the video also compensates for difficulties in memory and for what Tannock, Kershner and Oliver (1984) referred to as verbal memory overload. Ellis and Wooldridge (1985) interpreted the results of their memory task for pictures and words as demonstrating the greater retention of information with an imaginal memory code than with a verbal code in a group of mentally retarded subjects.

Pictures were found to increase responsiveness and to eliminate the slight bias towards choosing the latter of two options (Sigelman, Budd, Spanhel & Schoenrock, 1981). The use of the ~~final~~ freeze frame to capture the facial expressions of the two main actors in the video version of the inventory also functions to assist the MR subjects in choosing an appropriate response as the MR have been shown to be less adept than non-retarded individuals in recognizing facial expressions of emotion (Gray, Fraser & Lendar, 1983).

One of the benefits of the video is that the scenes used to describe the theoretical constructs have face validity in that they are based on the everyday experiences of the individuals under investigation and can be viewed as more than a laboratory peculiarity. (A more complete description of the video itself is contained in Chapter V.)

Rationale for the Study

A number of theoretical approaches to the description of personality dimensions in the mentally retarded were reviewed in the preceding chapter. The rationale behind the present study was an attempt to measure personality traits in the mentally retarded from a clear theoretical base. Secondly, the current research sought to develop a brief personality measure specifically suited to the needs of the mentally retarded as traditional assessment techniques not have proven useful. Specifically, the current study sought to validate the video assessment device which was based on the revised Eysenck questionnaire (Das, Schokman-Gates, & Murphy, 1986). The video format was intended to reduce the verbal and cognitive demands required by most commonly used personality measures.

While no explicit hypotheses were offered, it was anticipated that comparable factor structures as well as predominantly significant correlations would emerge from the questionnaire and video versions of the instrument. Secondly, it was expected that the MR subjects would be able to categorize themselves as behaving more like one of the other of the actors/actresses in each scenario of the video. If the characters protrayed in the video were seen as weak exemplars of the intended trait dimensions by both the prototypicality raters and the subjects, it was expected that the confusion of the subjects would be demonstrated by the absence of significant item correlations between the two forms of assessment. It was also expected that if the visually presented behavioral prototypes were unclear, the responses to those items would be unclear in a factorial analysis (i.e., cross loading or no loading).

In terms of the prototype approach, it was expected that the prototype raters would be able to categorize the majority of the character portrayals in the video into the appropriate categories, I-E and N-ES and that these categories would match the intended portrayals. It was also anticipated that the external check of the subjects' self ratings on the two forms of the assessment device, that is the supervisors' ratings, would correspond. That is to say that the supervisors' categorization of the subjects should match their self-categorizations.

III. Study One: Initial Assessment of the Revised Questionnaire and Video Instruments

A. Introduction

A conventional British questionnaire, the Eysenck-Withers Personality Inventory (S. Eysenck, 1965), measuring extraversion and neuroticism in adolescents in the mild to moderate range of mental retardation was revised to suit the needs of a Canadian, non-institutionalized population (Das et al, 1986). Based on factor analytic and item reliability findings the scale was revised to include only 32 items (13 Introversion-Extraversion, 13 Neuroticism-Emotional Stability, 6 Social Desirability).

The video format was developed in an attempt to a) reduce the verbal and cognitive processing demands required by most commonly used personality measures, b) more effectively hold and maintain the interest of the participants as MR individuals have been noted to have a visual-spatial modality preference (Ashman, 1982), and c) increase responsiveness (Sigelman, Budd, Spanhel & Schoenrock, 1981).

A previous study (Thorpe, Bardecki & Balaguer, 1967) had questioned the reliability of the Eysenck-Withers Personality Inventory (EPI) in terms of test-retest reliability as well as administration and examiner effects for use with MR subjects. Their analysis involved two types of administrations, two examiners, test-retest reliability and inter-examiner reliability. The results indicated that the reliability of the EPI was insufficient. The researchers also commented on the frequency distribution, particularly of the extraversion scores which were markedly negatively skewed. (The data reported in the EPI manual appears to have a similar distribution.) The purposes of the study were therefore: a) to compare the questionnaire and video forms of the Revised Eysenck-Withers Personality Inventory (Das et al., 1986), b) to assess the stability of the responses to the questionnaire format over time, and c) to assess the external validity of the students' responses.

B. Method

Subjects

The 222 adolescents who took part in this study were attending a specialized junior/senior high school in a large urban setting, the same school in which the revised questionnaire had been developed. IQ data for these subjects was obtained from the school records. The mean mental age for the subjects was 10.44 years, with a range of 5.96 to 15.86 years. The mean chronological age was 15.68 years (range 12.33 to 19.83). The mean IQ was 66.75 (range 42 to 84).

Tests and Procedures

The test instruments were the Revised Eysenck-Withers Personality Inventory (REPI) and the video based directly on the questions of the REPI. The two forms were administered in a counterbalanced design by the same examiner over a two week period. The questionnaire form of the instrument is a 32 item printed list of questions with 13 questions each for introversion-extraversion and neuroticism-emotional stability as well as a 6 item social desirability scale (see Appendix A). The questions were all read aloud. The responses to the 32 items presented in a "yes-no" format were recorded by the subjects themselves if they were able, and by an assistant to the examiner if they were unable to do so.

The video version of the REPI consists of 26 questions, 13 questions each for extraversion and neuroticism. The items correspond directly to the questionnaire version, but the social desirability scale has not been included.

The set of short video episodes was developed by members of a professional theatre company based on the REPI questions and after observational periods spent in home and work settings common to individuals with mental handicaps who reside in the community. Each scenario involves the presentation of two opposing types of behavior such as an introvert and an extravert at the breakfast table. One of the two hosts appears at the end of the scene to ask both the questionnaire item and "Which person is more like you?" The faces of the main actors are presented in a freeze frame, split screen image and held for 15 seconds. The response sheet has a left-right split box for each question which parallels the split screen (see Appendix B). The participants recorded their responses by marking the box which corresponded to the position of the character which they perceived to behave more like themselves.

Questionnaire Protocol

The following instructions were read aloud to the participants:

> On these two pages are some questions about how people usually feel. Since no two people feel the same, there are no right or wrong answers to these questions. What we would like you to do is to answer each question about how *you usually feel.* Let's start with question #1. It asks "Do you like lots of exciting things going on around you?" If you *usually like* to have lots of exciting things going on around you, then please put an 'x' on the first line in the "Yes" column. If you do not usually like lots of exciting things going on around you, then please put an 'x' on the first line in the "No" column. We want your true feelings, so mark the first answer you think of after you hear/read the question. Now look at question #2,...etc.

Video Protocol

> On the video we are going to watch some short scenes showing how people act and feel. After each scene is a question about how people usually feel. Since no two people feel the same, there are no right or wrong answers to these questions. What we would like you to do is to answer each question about how you usually feel.
>
> Let's watch the introduction and scene 1 together. (Present introduction and scene 1.) It asks "Do you sometimes feel that life is not worth living?" and "Which person is more like you, Linda or Mary?" If you sometimes feel that life is just not worth living, like Linda (indicate the person on the freeze frame) then put an X in

the box that is on the same side of the screen as Linda. If you do not feel like Linda, then put an X in the box that is on the same side as Mary. It is not necessary to think hard about the question so quickly mark the box for the person that feels more like you do.

Administration took place in the music room of the school and was done by classroom groupings. The total testing time for each group was approximately one half hour for the questionnaire format and one hour for the video format.

Additionally, the teachers accompanying each class were asked to rank all of the class members in attendance that day from most to least outgoing and most to least anxious.

C. Results

Responses to the 32 item questionnaire and 26 item video (the 6 item social desirability scale is not included in the video) were factor analyzed using a principal components analysis with varimax rotations. Initial inspection of the factor matrix for the questionnaire indicated the presence of 8 factors using the conventional criteria of eigenvalues greater than one. For the video format, the initial factor matrix indicated the presence of 9 factors using the criteria of eigenvalues greater than one (see Appendix C). In each of the instruments, two factors emerged which could be interpreted in the light of Eysenck's theory of personality and also in line with the development of the revised inventory. The two factors which emerged, more clearly on the questionnaire than the video form, justified the labels extraversion and neuroticism. On both forms, the extraversion subscale did not demonstrate as clean a factor structure as the neuroticism subscale. The results of the two factor interpretation are presented in Tables 1 and 2.

Thus, the structure of the Revised Eysenck Personality Inventory (especially in questionnaire form) was confirmed in that two orthogonal factors were extracted, extraversion and neuroticism. Both versions of the personality assessment instrument demonstrated that the traits outlined in Eysenck's model could be applied to mentally retarded adolescents.

Table 1

Study One: Factor Analysis - Questionnaire
Principal Components with Varimax Rotations

Extraversion	Factor 1	Factor 2
1		.33
2		—
3		—
4		.71
5		.30
6		—
7		.35
8		.49
9		—
10	.74	
11		.65
12		—
13		.69
Neuroticism		
1	.49	
2	.63	
3	.56	
4	.65	
5	.44	
6	.57	
7	.54	
8	.39	
9	.62	
10	.58	
11		.62
12		.67
13		.61
Eigen value	5.04	3.43
Percent variance	15.8	10.7

Table 2

Study One: Factor Analysis - Video
Principal Components with Varimax Rotations

Extraversion	Factor 1	Factor 2
1	-.48	.32
2	-.54	—
3	-.35	—
4		.32
5		.47
6		.44
7		.60
8		.40
9		.44
10	.59	
11		.43
12		—
13		.51
Neuroticism		
1	.42	
2	.43	
3	.33	
4	.43	
5		-.33
6	.49	
7	.57	
8	—	
9	.51	
10	.53	
11		.43
12		.45
13		.42
Eigen value	3.77	2.08
Percent variance	14.5	8.0

In comparing the two forms of the instrument, it appeared that there were weaknesses in the video. It was felt that perhaps the characters (prototypes) presented were being interpreted differently than was the intent of the video developers. However, the initial validity of the video form was derived from correlations between the stable questionnaire and the video which were within an acceptable range (see Tables 3 and 4). In short, the two forms of the revised inventory were considered to be somewhat comparable, but further comparison and validation were necessary.

A second aim of this study had been to assess the stability of the responses to the questionnaire form over time. It was found that the scores were indeed consistent over a 14 month period thus lending support to the reliability and validity of the questionnaire format (see Table 5). The negative skew for the extraversion scores was noted.

Analysis of variance yielded no significant effects for mental age, mode of presentation or scores on the two dimensions.

Finally, the results of the teacher rankings were unusable as some of the classes had as few as two students in attendance on a given day and also because approximately one half of the teachers accompanying the classes were substitute teachers who therefore were not familiar with the students.

Table 3

Extraversion: Correlations between the Questionnaire and Video Forms (N=185)

Question	r	p
Are you usually happy and cheerful?	.3348	***.001
Do you feel that if things go wrong at first they will usually work out right later on?	- .0490	.254
Do you usually feel that you can do the things you have to do?	.0315	.335
Do you like talking with people?	.1637	**.013
Do you usually want exciting things to happen?	.1384	*.030
Do other people think of you as being someone who is always doing lots of things?	.0735	.160
Do you like going out a lot?	.1637	**.013
Do people think that having you at their party makes it more fun?	.2329	***.001
Do you like telling jokes or funny stories to your friends?	.2953	***.001
When you go to a party do you usually have a lot of fun?	.2359	***.001
Do you enjoy talking to other people a lot?	.1552	*.017
Do you usually answer right away when people talk to you?	.1557	*.017
Do you like lots of exciting things going on around you?	.1016	.084

Significance Level: * <.05
** <.01
*** <.001

Table 4

Neuroticism: Correlations Between the Questionnaire and Video Forms (N=185)

Question	r	p
Do you sometimes feel that life is just not worth living?	.2388	***.001
Do you find it hard to get to sleep at night because you are worrying about things?	.2651	***.001
Do lots of things bug you?	- .0119	.436
Do you sometimes feel all shaky inside?	.1667	**.012
Do you ever feel "just miserable" for no good reason?	.1449	*.025
Do you often feel fed-up?	.1900	**.005
Are you usually nervous or jumpy?	.2585	***.001
Do you often feel guilty about things?	.0419	.286
Do you often feel lonely?	.2744	***.001
Do you worry about awful things that might happen?	-.0516	.243
Are your feelings easily hurt?	.2303	***.001
Do you worry for a long time if you feel you have made a fool of yourself?	.1482	*.022
Do things keep running through your head so that you can't sleep?	.1776	**.008

Significance Level:
* <.05
** <.01
*** <.001

Table 5

Results from Study One

Questionnaire Scores

	1984 (N = 229)***			1985 (N = 222)		
	Mean	Median	Range	Mean	Median	Range
Extraversion*	9.99	11.0	0 to 13	9.99	11.0	0 to 13
Neuroticism*	6.96	7.0	0 to 13	6.22	6.0	0 to 13
Social Desirability**	2.39	2.0	0 to 6	2.49	2.0	0 to 6

* 13 items
** 6 items

*** Refers to results reported by Das et al., 1986.

IV. Study Two: Reliability Assessment of the Questionnaire and Video Instrument

A. Introduction

In an earlier investigation (Kabzems & Das, 1986) the initial reliability and validity of the two forms of the Revised Eysenck-Withers Personality Inventory were assessed. The personality dimensions of extraversion and neuroticism were demonstrated to be measurable in non-institutionalized mentally retarded adolescents. Although there was evidence for the reliability of both forms of the REPI, it was not conclusive and further investigation was considered necessary. (In the academic realm, there have been many failures of prediction from personality inventories due to weaknesses in construction for example. On the other hand, there are positive reports which never get replicated.)

The objectives of the second study included a) a comparison of the two forms of the revised personality inventory based on factor analysis, b) to see if the questionnaire and the video could be applied to a more representative sample of vocationally oriented MR subjects (adults rather than adolescents) and c) to utilize external ratings of the participants in an attempt to gauge the validity of their self-reports.

Reassessing the two forms of the inventory meets the requirement for criterion validity as it examines the relation between a test (video version) and an already available criterion, the questionnaire format which was shown to be stable in Study One. The second study was in a position to provide additional evidence of content validity as obtained from correlating scores between tests considered to be measuring the same content area.

By administering the two forms to a new, but similar subject group, the second study would be in a position to evaluate the durability of the items for a new sample (cross validation) as well as to address questions of generalization.

The external raters' judgements of the participants was desired as a measure of concurrent validity and was to be compared with the participants' self-report scores to assess the congruence of the two measures.

B. Method

Subjects

The 84 participants who took part in the study were clients of a vocational training centre for persons with varying mental handicaps which were considered to substantially limit their options in competitive employment situations. The mental handicaps included developmental disabilities, mental illness and brain injury.

With respect to the current participants, approximately one quarter of the clients of the training centre agreed to take part in the study, 47 males and 37 females. The information concerning the client's primary disability, length of time at the centre, referral agent, residential status, guardianship status, attendance record and work skills achieved was taken from the information available in the client files and can be seen in Appendix D.

Chronological Age

The participants ranged between 17.75 and 52.25 years of age. The average age was 31.32 years.

Primary Disability

Since one of the guiding principles in the development of the video format has been its eventual use with the mentally retarded (as well as mentally ill or illiterate samples), it was decided that for reporting purposes, the results would be presented for the entire sample and then for the participants for whom mental retardation was given as their primary disability in the client records.

Table 6

Primary Disabilities

Primary Disability	Number of Clients	%
Mental Illness	16	19
Mental Retardation	63	75
Physical Handicap	4	4.8
Brain Injured	1	1.2

Average Work Skills Achieved

An evaluation of 30 basic work skills which determine the vocational competence and employment potential of a client was carried out in a number of industrial settings, generally within the training centre itself. These ratings are made by the setting's supervisor and are used as a basis for decision making concerning the client's employment opportunities or directions for future training. Each setting uses the same list of 30 basic work skills.

A score of 0-12 would place the client in a work activity program where training in attending to work tasks and in social skills related to work is provided. A score of 13-20 results in placement in the work adjustment training component in a variety of industrial type settings. The focus turns to the acquisition and maintenance of the work skills necessary for competitive employment. With 21-23 skills, the client becomes eligible for community based training programs. The focus is now on specific skill training, social skills and rate of production. The last stage, when the client has achieved 24 or more of the work skills, is job placement. This level consists of pre-employment classes, job seeking "clubs", job placement referral, an appropriate placement and follow-up (see Table 7).

Table 7

Number of Work Skills Achieved by the Subjects

Category	Work Skills	Number of Clients	%
Work Activity	0 - 12	6	7.1
Work Adjustment	13 - 20	48	57.2
Community Based Eligibility	21 - 23	22	26.2
Job Placement Eligibility	24 - 30	8	9.5

C. Tests and Procedures

Test Materials

The instruments described below were administered to all subjects using a counterbalanced design. The instruments were the Raven's Coloured Progressive Matrices (Raven, 1965), and the questionnaire and video forms of the Revised Eysenck-Withers Personality Inventory (Das, Schokman-Gates & Murphy, 1986). The mode of presentation of the instruments was in a group setting; usually numbering four clients. Due to holidays, absenteeism or production line constraints, the groups occasionally consisted of a minimum of one to a maximum of six participants. The same examiner administered all of the instruments.

Raven's Coloured Progressive Matrices (RCPM)

This is a traditional test of general, nonverbal reasoning (Raven, 1965). The subject is required to indicate which of six alternatives correctly completes a given, nonverbal pattern.

The RCPM is an analogy test of observation and clear thinking which consists of three sets of twelve items each. It was designed for children aged 5 to 11 years and for "clinical work." The instrument also contains norms for the mentally retarded, extrapolated into the adult years. In the current study it was used as a quick, non-verbal, non-threatening estimate of intellectual functioning since this information was often not available from the client records. The test was given in order to ascertain the general level of intellectual functioning and to make certain that the vocational clients were intellectually within the same range as the subject population used in Study One so that direct comparison of results could be made.

Revised Eysenck-Withers Personality Inventory (REPI)

The Revised Eysenck-Withers Personality Inventory is an instrument derived from the Eysenck-Withers Personality Inventory (S. Eysenck, 1965) which was intended to measure extraversion and neuroticism in non-institutionalized Canadians with developmental disabilities (Das et al., 1986). It has been developed into two forms, questionnaire and video and consists of 32 and 26 items respectively. The social desirability scale was not included in the video. (See Chapter III for a more detailed explanation.)

Scoring

On the questionnaire version of the REPI, the I-E (extraversion) items and the N-ES (neuroticism) items are worded as in the Eysenck-Withers Personality Inventory (Eysenck, 1965) so that each affirmative answer is credited to its respective scale. Negative responses receive no credit. Because the theoretical basis for the instrument considers I-E (and N-ES) to be on a continuum, a low Extraversion score would indicate that the individual is more introverted than extraverted and similarly a low Neuroticism score would indicate that the person is more emotionally stable. The range of scores is from 0 to 13.

Adjective Checklist: Supervisor Ratings

Five polar adjectives, one set for each of the four personality dimensions taken from Eysenck's (1967, 1970) personality classifications were given to each participant's current work supervisor in order to obtain an independent, externally based measure of each participant's personality traits (see Table 8). The eleven supervisors were asked to decide whether or not any adjectives in the list provided could be used to accurately describe the participant with whom the supervisor was directly affiliated. One checklist was obtained for each participant and the total numbere of adjectives checked 'yes' in each of the four categories was tabulated. The time needed to check 'yes' or 'no' for the 20 adjectives was generally less than 3 minutes.

In order to place the supervisors' ratings in perspective with the clients' self-ratings, the categories within the same dimension were combined. For example, the maximum number of adjectives in any one category was 5 and the minimum 0. Thus, a dimension was construed as having a range of -5 to +5. Extraversion and neuroticism were marked as positive integers while introversion and emotional stability were marked as negative integers. For example, if the supervisor checked 'yes' to 5 adjectives in the category extraversion and 'yes' to 1 adjective in the category introversion, the participant would be assigned a score on the I-E dimension of 4 (5 + (-1) = 4).

Table 8

Adjective Checklist: Supervisor's Ratings

	Yes	No
active	___	___
independent	___	___
sociable	___	___
optimistic	___	___
outgoing	___	___
inhibited	___	___
sensitive	___	___
quiet	___	___
reserved	___	___
passive	___	___
lonely	___	___
disorganized	___	___
suspicious	___	___
undependable	___	___
moody	___	___
stable	___	___
calm	___	___
objective	___	___
even-tempered	___	___
responsible	___	___

Procedure

All the testing was done in a classroom in the main vocational centre building. A number of the clients had to travel from their normal place of work in order to participate. The two forms of the personality inventory were administered one week apart (where possible) in a counterbalanced design. The Raven's Coloured Progressive Matrices was administered during the same session as the questionnaire format of the inventory. The total testing time per individual was approximately two hours, one hour for each of two sessions.

D. Results

Exploratory data analysis revealed: a) the females in Study Two were less intellectually able than the males ($p < .01$); b) the MR clients had spent a substantially longer time in the vocational training centre than the MI clients ($p < .05$); c) the MR clients were more likely to reside at home ($p < .01$); d) the MR clients were more likely to have a legal guardian ($p < .01$); and e) the MR clients had achieved fewer vocational skills ($p < .05$).

There were no significant sex differences in skills acquired, time spent in the centre, type of disability or guardianship.

Factorial Validity Assessment

Responses to the two forms of the personality inventory were factor analyzed using a principal components analysis with varimax as well as promax rotations. Initial analysis of the questionnaire version indicated the presence of 8 factors using the conventional criterion of eigenvalues greater than one (see Appendix E). However, based on theoretical considerations and the outline of the scree plots, a two factor solution was viewed as the most meaningful for the present study. The oblique rotation (promax) did not produce more interpretable results than was presented by the orthogonal rotation. The only one to possibly reach a simple solution was the varimax rotation for the total group on the questionnaire which converged in 12 iterations. For the total sample and the MR subgroup, the pattern matrix of the promax oblique analysis confirmed the dimensions obtained in the orthogonal analysis which was considered to be more theoretically acceptable to the study. Both of the factor models demonstrated the functional independence of extraversion and neuroticism.

Additional exploratory data analysis using Cattell's scree plots (Cattell, 1966) indicated the possible existence of two minor factors with very weak factor loadings (i.e., few above .4) which are open to speculation. For, as Cattell pointed out, the use of the screen in practice "depends strictly on inductive generalization" (p. 273). One of the minor factors included items which might be considered reflective of mood or affect in the respondent and included items such as "Do you sometimes feel that life is just not worth living?". The second minor factor might hesitatingly be considered "escape from boredom" as it covered items such as "Do you like telling jokes or funny stories to your friends?". These two potentially interpretable factors are on shaky ground as in a double scree, that is the split of the scree line into two distinct slopes, the empirical rule has simply been to take the higher scree and ignore the lower. The principal components solutions for the questionnaire data are presented in Table 9.

It can be seen from this analysis that the first component was almost entirely defined by marker variables from the neuroticism subscale, with acceptable loadings of above .30 appearing on all of the items. Factor 2 can be identified by marker variables from the extraversion subscale. The factor structure is clean.

Given these findings, the same process was applied to the 26 video items. The question was whether or not the video items would relate to factors in the same general manner as did the questionnaire items. Thus, the primary concern was the extent to which the two forms of the assessment device would show similar factor structures since they were based upon the same items.

Initial analyses of the data from the administration of the video instrument indicated the presence of 9 factors using the conventional criterion of eigenvalues greater than one using the principal components approach (see Appendix E). The principal axes approach indicated the presence of only 5 factors with eigenvalues greater than one, but the factor loadings were considerably lower (.53 to .30 against .67 to .34 for the principal components) as well as lower eigenvalues and cumulative percentages. Thus, again based on both the scree plots and theoretical considerations, the orthogonal rotation produced more interpretable results than were produced by the oblique rotation. The principal components solution for the video data is presented in Table 10.

It can be seen that the first component, factor 1, was best defined by the marker variables for neuroticism with acceptable loadings above .30 appearing on 9 of the 13 items. Factor 2, less clear than both its counterpart in the questionnaire analysis and the neuroticism

Table 9

Principal Components Factor Matrix with Varimax Rotations: Questionnaire

	Factor 1		Factor 2	
Subscale	Total Group	MR only	Total Group	MR only
Extraversion				
1			.42	.46
2			.50	.41
3			.67	.72
4			.44	.53
5			.55	.50
6			.71	.74
7			.65	.76
8			.44	.52
9			.56	.59
10			.61	.55
11			.32	.32
12			.46	.57
13			.66	.72
Neuroticism				
1	.58	.63		
2	.54	.57		
3	.64	.58		
4	.60	.58		
5	.52	.51		
6	.64	.64		
7	.55	.57		
8	.51	.52		
9	.48	.34		
10	.51	.49		
11	.61			.61
12	.53	.62		
13	.49	.49		
Eigen Values	4.60	4.71	3.90	4.31
Percent Variance	17.7	18.1	15.0	16.6

Table 10

Principal Components Factor Matrix with Varimax Rotations: Video

	Factor 1 (N)		Factor 2 (E)	
Subscale	Total Group	MR only	Total Group	MR only
Extraversion				
1	-.59	-.65		
2	-.54	-.47		
3	-.60	-.56		
4	-.36	-.48		
5			.64	.66
6			.46	.47
7			.34	
8			.65	.63
9			.52	.49
10			.64	.68
11		-.38		
12	-.33	-.47		
13		-.45		
Neuroticism				
1	.31		-.38	
2	.67	.70		
3	.48	.50		
4			-.45	-.55
5	.39	.38		
6	.61	.61		
7	.44	.41		
8	.42	.42		
9	.64	.62	-.32	
10			-.70	-.72
11			-.50	-.60
12			-.62	-.59
13	.53	.51		
Eigen Values	5.00	4.99	2.57	3.14
Percent Variance	19.2	19.2	9.9	12.1

subscale, was best outlined by the marker variables from the extraversion subscale in only 6 out of 13 instances. Five of the items load negatively on the neuroticism factor.

If one keeps in mind the orthogonal nature of the personality constructs in Eysenck's theory, a negative loading on the neuroticism factor suggests the possibility that these items were interpreted as reflecting emotional stability rather than neuroticism. (Further light was shed on this outcome in the prototypic analysis of the video where there was considerable overlap in the perceptions of extraversion and emotional stability.)

In an attempt to outline more clearly a two factor solution for the video items, the data was reanalyzed after deleting those variables which had appeared as cross loaders in the original analyses. Four factors emerged, two of which accounted for 36.5 percent of the variance, but the marker variables for extraversion continued to prove troublesome with cross loadings on the marker variables for neuroticism.

With respect to the two additional factors weakly suggested from examination of the scree plots, the categories broadly named mood and escape from boredom were not interpreted further due to their low loadings. These findings do make some logical sense in terms of the known incidence of mental illness in the MR and in terms of their impulsivity and workshop style behavior (Graffam & Turner, 1984).

It should be noted here that although there is some concern regarding the factor structure of the personality dimensions and the age and level of intellectual functioning of the subjects, of more concern in this study was the extent to which the questionnaire and video instruments would show similar factor structures.

These results, based on a smaller sample than in the earlier study demonstrated better "fits" with the theoretically imposed factor solutions than those of the earlier investigation. The percentage of variance attributable to the two factors of interest was also higher in Study Two despite the smaller sample size.

Item Analysis

Using Cronbach's alpha (Stanley, 1971) as the most appropriate reliability measure, internal consistency analyses were carried out on each of the two subscales for each of the two instruments. The alpha coefficients are presented in Table 11. These values are consistent with the values found for the questionnaire version REPI (Das, et al, 1986) based on an adolescent sample of MR subjects, (.84 and .73 for neuroticism and extraversion, respectively).

Table 11

Alpha Coefficients

	Questionnaire		Video	
Subscales	Total Group (N=84)	MR only (N=63)	Total Group	MR only
Extraversion	.80	.83	.68	.69
Neuroticism	.82	.81	.77	.73

It can be observed that the internal consistency for both the extraversion and neuroticism subscales on the questionnaire version for both the total group of subjects and the MR subjects is within the acceptable range whereas the internal consistency for the subscales as presented in the video are not.

The questionnaire subscales in the present study had means of 10.43 (SD ± 2.68) for extraversion and 6.42 (SD ± 3.60) for neuroticism. The video subscales had means of 8.54 (SD ± 2.77) for extraversion and 4.88 (SD ± 3.19) for neuroticism. As in the Das, et al. (1986) study, the extraversion scores were negatively skewed, suggesting a rather narrow distribution. The majority of the scores were in the value range of 10 to 12 in the current study. The neuroticism scores were more evenly distributed (see Table 12). For a summary of the subscale scores for the Das, et al. (1986) study, Study One (Kabzems & Das, 1986) and the present study, see Appendix F. Ranges for all groups and subscales with the exception of the MR only group's video scores, indicated that both extreme and intermediate values were being chosen by the subjects.

Table 12

Subscale Scores

	Questionnaire				Video			
	Total Group (N=84)		MR only (N=63)		Total Group		MR only	
	E*	N**	E	N	E	N	E	N
Mean	10.43	6.42	10.57	6.10	8.54	4.88	8.75	4.59
SD	2.68	3.60	2.75	3.55	2.77	3.19	2.75	2.98
Median	11.0	6.0	11.0	5.0	9.0	5.0	9.0	5.0
Mode	12.0	5.0	12.0	5.0	10.0	6.0	10.0	6.0
Range	0-13	0-13	0-13	0-13	1-13	0-13	1-13	0-12

*Extraversion
**Neuroticism

The scales can be said to differentiate between persons for despite the skew in the scores, there are some persons rated at all scale positions.

Supervisor's Ratings

An external check on the validity of the two forms of the assessment device was initiated by having the work area supervisor rate the clients from their area who took part in the present study. The results indicated that the supervisors' ratings of the neuroticism items on the adjective checklist correlated significantly with the clients' self ratings for neuroticism on both the questionnaire ($p < .000$) and video ($p < .003$) forms. There was no significant correlation for extraversion on either of the forms when compared with the supervisor's ratings.

Self-Ratings

It is noteworthy that the client's own self ratings were significantly correlated ($p < .001$) over the two forms and their respective subscales. The correlations for the subscales of extraversion were strong ($r = .61$ for the total group and $r = .63$ for the MR group). The correlations for the subscales of neuroticism were weaker but still significant for the total group ($r = .40$, $p < .001$) and for the MR group ($r = .34$, $p. < .01$).

Looking at the correlations and comparing them with the cross loadings from the subscale of extraversion on the video, there is a significant ($p < .001$) negative correlation ($r = .53$) between the extraversion and neuroticism subscales of the video instrument. Therefore, it is suggested that contamination of the items is occurring as the people who consider themselves to be extraverted also perceive themselves as demonstrating the characteristics of emotional stability or alternatively, are perceiving the ES characteristics in the video portrayals as reflecting extraversion.

E. Discussion

The second study has demonstrated several things so far. First, it supports the concept of Eysenck's trait-factor model in its application to a mentally retarded sample. Secondly, it supports the reliability and initial validity of the questionnaire form of the personality assessment device. Based on the external raters' (i.e., supervisors) ratings of the perceived personality characteristics of the clients and the clients' self ratings on the two forms of the assessment device, the video format would appear to be reliable in its assessment of neuroticism but not extraversion.

This finding has led the current researcher to speculate that there may indeed be some substance to the secondary factors suggested by the scree plots in that the subjects may be seeking stimulation (a more exciting life) when in actuality, their daily actions are not similarly perceived by their respective work supervisors.

It was encouraging to see a stronger, clearer factor outline emerge from the questionnaire format despite the limitations imposed by a smaller, more homogeneous sample than was the case in the previous study. (Homogeneity in subject samples tends to lower correlations so the factors become less clearly defined.) A second potential difficulty was the ratio of subjects to variables. The second study followed the rule of matrix algebra that there should be at least twice as many subjects as variables in a factor analysis (Kline, 1981). Commonly utilized criteria for subject to variable ratios would have made this type of a study difficult to carry out for practical reasons. The fact that replication of the factor analysis was possible after the initial study which had more than 200 subjects lends support to the second study. If the factors are clear, they should emerge despite the noise created by deficient methods.

In justifying the acceptance of the orthogonal rotation factor structure rather than the oblique, upon reflection on the shape of the scree plots and the alignment of the factors in accord with the theory behind the Revised Inventory, one uses (or transforms) the data to match one's conceptualization of the variables (Maguire, 1986). Secondly, as Cattell (1965) pointed out, it is simply pragmatic to use a two factor solution, in this case, as the variables have been chosen from years of research to yield certain factors. Now what is especially pertinent to the questionnaire format is that one now has factors which have been shown to be relatively stable and invariant across experiments. As well, the correlations between the subscales were within an acceptable range (see Tables 13 and 14).

A few comments should be made regarding the recurring negative skew in the extraversion scores. Several possible reasons for this consistent finding are suggested, keeping in mind that extraversion is primarily composed of sociability and impulsivity. (Impulsivity can be further subdivided into an impulsive component which seems to be related to failure to

Table 13

Pearson Product Moment Correlations between Questionnaire and Video:N

Neuroticism Scale	Total Group N = 84		MR only N = 63	
	r	p	r	p
Do you sometimes feel that life is just not worth living?	.1711	.060	.1880	.070
Do you find it hard to get to sleep at night because you are worrying about thing?	.1926	.040	.1498	.121
Do lots of things bug you?	.1238	.131	.1169	.181
Do you sometimes feel all shaky inside?	.0268	.398	.0937	.233
Do you ever feel "just miserable" for no good reason?	-.0186	.433	-.0096	.470
Do you often feel fed-up?	.2613	**.008	-.0085	.474
Are you usually nervous or jumpy?	.1869	*.044	.0905	.240
Do you often feel guilty about things?	.0488	.330	.2067	*.052
Do you often feel lonely?	.4005	***.001	.2042	*.054
Do you worry about awful things that might happen?	.1210	.136	-.0841	.256
Are your feelings easily hurt?	.1238	.131	.1102	.195
Do you worry for a long time if you feel you have made a fool of yourself?	.1436	.096	.0741	.282
Do things keep running through your head so that you can't sleep?	.1585	.075	.1010	.215

Significance Level
* <.05
** <.01
*** <.001

Table 14

Pearson Product Moment Correlations between Questionnaire and Video:E

Extraversion Scale	Total Group N = 84		MR only N = 63	
	r	p	r	p
Are you usually happy and cheerful?	.3316	***.001	.392	***.001
Do you feel that if things go wrong at first they will usually work out right later on?	.2434	**.013	.1203	.174
Do you usually feel that you can do the things you have to do?	.3336	***.001	.1691	.093
Do you like talking with people?	.3146	**.002	.2907	**.010
Do you usually want exciting things to happen?	.1471	.091	.1183	.178
Do other people think of you as being someone who is always doing lots of things?	.0780	.240	.0800	.267
Do you like going out a lot?	.4034	***.001	.3721	***.001
Do people think that having you at their party makes it more fun?	.2093	*.028	.3162	**.006
Do you like telling jokes or funny stories to your friends?	.3025	**.003	.2337	*.033
When you go to a party do you usually have a lot of fun?	.3735	***.001	.4757	***.001
Do you enjoy talking to other people a lot?	.1739	.057	*.0430	.369
Do you usually answer right away when people talk to you?	.0535	.315	*.0679	.298
Do you like lots of exciting things going on around you?	.1865	*.045	*.0540	.337

Significance Level
- * <.05
- ** <.01
- *** <.001

evaluate the potential danger or risk of a situation and an impulsive component in which the individual is aware of the risks but chooses to gamble.)

The distinction between impulsivity and sociability is important. Experimental methods have shown that the two components have different patterns of results in a variety of paradigms (Rocklin & Revelle, 1981). Impulsivity appears to be more directly related to arousal mechanisms than sociability. For example, impulsivity bears a systematic relationship to vigilance decrements whereas sociability does not.

Eysenck (1964) noted that the theory maintains that brain damage increases the total amount of inhibition affecting the cortex and consequently predicts that brain damaged individuals will behave in a more extraverted manner than will normals. Persons within the moderate range of mental retardation are frequently found to have some form of organic mental impairment. It would follow therefore that injury to the brain might interfere with the reciprocal exchange of neural impulses between the cortex and the RAS, thus increasing the effects of any suppressor mechanism. The results of brain damage, then, would be related to increased cortical inhibition and lead to behavioral effects such as the slow formation of conditioned responses and the rapid build up of reactive inhibition and hence, extraversion. (Eysenck, 1967, cites studies which provide support for the existence of a relationship between extraversion and brain damage.)

Often persons with mental retardation are considered to have poor social or adaptive behavior skills. Impulsiveness is an aspect of extraversion which shows some correlation with poor adjustment (Eysenck & Eysenck, 1969). Again, the obtained extraversion scores may simply be a function of valid self-reports.

In physiological terms, extraversion is related to differences in cortical arousal. Low levels of arousal (assumed to exist in mentally retarded individuals, particularly those with some organic component) leads to poor classical conditioning which can be held responsible for the acquisition of conditioned and socializing responses. Low levels of arousal are also assumed to lead to sensation seeking.

To summarize, the results obtained in the two studies reported thus far suggest that the Revised Eysenck-Withers Personality Inventory, particularly the questionnaire format, is a reliable instrument for evaluating the personality dimensions of extraversion and neuroticism in mildly and moderately mentally retarded adolescents and adults. The factorial validity of the questionnaire format has been clearly demonstrated as well as the durability of its items in a new sample. Construct validity has been demonstrated as a positive relationship has been shown to exist between the test scores on the two forms of the assessment device. The question of external validity has been partially addressed in that the supervisors' client ratings were accurate with regard to the direction of the clients' self-ratings along the dimension of neuroticism.

In terms of usefulness, including ease of administration, the questionnaire format has some statistical advantage over the video format. The MR subjects have shown themselves to be reliable and consistent in their self-reports. Reproducible results between variables have been demonstrated, lending support to the application of Eysenck's theory of personality to the mentally retarded.

The results obtained in the present study and Study One suggest that the Revised Eysenck Personality Inventory questionnaire is potentially a reliable and valid instrument for assessing the personality dimensions of I-E and N-ES in MR adolescents and vocationally handicapped adults. The study has also demonstrated the potential use of a novel form of personality assessment, namely the video, but with some reservations.

V. Study Three: Prototype Analysis of the Video Presentation

A. Scientific and Common Sense Perceptions of Personality

Some of the most appealing insights into personality are to be found outside the grounds of theoretical or applied psychology. Rather these insights are unearthed in drama and literature. Few of us would claim to be novelists or playwrights, but many would lay claim to the rank of amateur psychologist. Our lexicon abounds with trait descriptors which are used in everyday speech. The general public often uses psychological concepts and terms in their daily activities. One frequently hears reference being made to level of intellectual functioning, mental illness and ascribed personality traits.

Recently, interest has been sparked in cognitive approaches to the study of personality as the implicit and explicit theories appear to be overlapping. The explicit theories of researchers tested on objective and behavioral data have generally begun as implicit theories based on particularly astute observations in daily life. It has been argued that personality traits function as cognitive prototypes, that is, as implicit beliefs about personality which are not made explicit, and which are used in an informal and often unconscious way. These prototypes affect information processing both for the perception of others (Cantor, Smith, French & Mezzich, 1980; Mischel, 1984) and for the self (Erdle & Lalonde, 1986).

Semin, Rosch and Chassein (1981) demonstrated that there is a conceptual overlap between the implicit and explicit (i.e., normative and scientific) concepts of extraversion and introversion. First order models, such as Eysenck's conceptualization of introversion and extraversion, are based on and derived from second order theories which include the common sense perceptions of introversion and extraversion. Furnham and Henderson (1983) also pointed out that introversion and extraversion were concepts that were both well used and understood by the lay person or naive subject. Further investigation by Furnham (1984) into the lay person's conception of neuroticism demonstrated an overlap between the explicit theories of the expert and the implicit theories of the lay person.

While the experts attempt to provide rational, explicit and hopefully parsimonious theories for the existence of these personality traits, individuals in the nonscientific domain continue to classify and categorize the people around them based on personality attributes inferred from everyday behavior and social interaction. A comprehensive approach to the classification of individuals must take into account the natural categorization which occurs in social and occupational roles (e.g., the absent minded professor or used car salesman) as well as more abstract or higher order constructs such as introversion and extraversion.

Categorization can be an orderly process despite its probabilistic nature. As in language, categorization simplifies what might otherwise be an overwhelming amount of data and serves to give coherence and a form of economy to our person perceptions. There is a problem, however, how does one define category membership when there are no hard and fast natural rules? This difficulty is reflected in the omnipresent debate concerning the selection of the appropriate criteria for validating personality constructs (Anastasi, 1976; Cronbach, 1971; Hampson, 1982; Lanyon & Goodstein, 1982).

B. The Prototype Approach

Rosch (1978) referred to the concept of prototypes as a convenient "grammatical fiction" to signify that prototypes do not exist in nature. Rather, prototypes refer to judgements about class members in terms of their goodness of fit into natural categories. Cantor and Mischel (1979a) have conducted studies which suggest that Rosch's view of the way we categorize natural objects such as furniture, fruit and animals can also apply to people such as the intelligent person, the cultured person, the emotionally unstable person and so on.

In the prototype approach, there are no specific defining features for any given category. The prototype approach assumes only that the features of the object are correlated with category membership. Therefore, prototypes are consistent with the existence of borderline instances or fuzzy sets as they are sometimes called. Prototyping makes sense out of variations in typicality where typical instances are those which share a higher proportion of distinct or critical features with the category prototype.

Further generalization of the prototype approach in person perception has been carried out in the areas of social situations (Cantor, Mischel & Schwartz, 1982), in the area of psychiatric diagnoses (Cantor, Smith, French, & Mezzich, 1980), in the construction of personality assessment devices (Broughton, 1984) and in self perceptions (Erdle & Lalonde, 1986). A problem arises as new items or events require categorization and a judgement call needs to be made.

Until recently, the study of natural classification systems, including implicit theories, has been guided by the classical view which maintains that members of a particular category all possess a small set of critical features (Vygotsky, 1965). Thus, the decision regarding category membership is based on an all or none criterion. An object either has all the defining features of a category, or it does not. Membership depends on having all of these critical features. All critical features are considered equally important.

These criteria however cannot be met. In real life there are penguins, bats and hydra as well as semantic categories which violate the classical all or none position. Implicit and explicit theories, despite some overlapping, remain distinct. Implicit theories are related to such things as word meanings, cultural jargon and media usage, while explicit theories attempt to define and measure complicated forms of behavior thought to persist over time (Furnham, 1984).

The question running through the lay perspective is the extent to which the lay (naive) perspective is reconcilable with that of the personality theorist. If one accepts that personality is a valid concept and if it is accepted that personality traits are categories used for encoding consistencies which do occur in the real world, then it should be possible to integrate the two perspectives.

The prototype view of traits as categories is in agreement with the explicit theorist's perspective. Trait theories categorize the range of personality variables in terms of a smaller number of underlying dimensions. The logic is therefore similar to that of the implicit theorist except that the so called expert arrives at the trait categories in an explicit manner with the assistance of statistical tools such as factor analysis.

Semin, Rosch and Chassein (1981) found evidence to support their contention that lay and expert conceptions of I-E were overlapping. Cantor and Mischel (1977) using a cognitive information processing model, demonstrated the existence and use of the I-E prototypes in person perception as well as in memory for personal attributes. Furnham (1984) found lay persons to be moderately accurate in the detection of personality questionnaire items measuring neuroticism.

It would appear that natural classification systems are utilized by members of the general public and that these implicit theories appear to be socially shared beliefs. This also suggests that commonly used terms (usually adjectives) allow for communication concerning perceived behaviors and traits of the individuals themselves, and others. The implications of prototype theory for personality assessment are important in two areas, beginning with the development of better assessment devices and secondly the development of more useful, socially valid, assessment criteria.

C. Determining Prototypicality

We use our implicit personality theories more frequently to describe a person to someone else, or to make predictions which require recalling our impressions of a person and using them to make judgements. Therefore, experiments concerned with how impressions are organised in memory and recalled are highly relevant to everyday life. Generally, the cognitive studies of personality categories have favored the examination of the effects of these categories on memory for personality information.

The work of Cantor and Mischel (1977, 1979a, 1979b) has borrowed heavily from the theory of object categorization (Rosch, 1978). In object perception, prototypes form standards against which input is compared and around which it is organized. The prototype is considered as the best exemplar of a particular category and incoming information is compared with this standard to determine how prototypical of the category the new instance appears.

Variations in prototypicality occur because category membership is not an all or none affair. Membership depends on the new stimulus being at an equivalent level in a taxonomy, i.e., at a similar level of abstraction, and it depends on whether or not the new stimulus possesses a greater number of the critical features of one category than those of another.

Cantor and Mischel (1979a, 1979b) have proposed that the categories for classifying person perceptions may be likened to object classification. Person categories will then be characterized by membership which is more or less prototypical along a continuum of prototypicality. Thus, when presented with a new person, a comparison would be made of this person's features and those associated with the prototypical member of the personality type to determine the goodness of fit and hence category membership. Having categorized the person as a more or less prototypical member of a category, this judgement will have implications for future information processing connected with this person.

Although the features of category members can vary, some features are more associated with the category than others. The presence of the more associated features in a certain instance make that instance typical of the category. The typicality of a given instance is a critical determinant of categorization since it has been shown that the more typical a given instance, the more accurately, quickly and reliably it can be categorized (Cantor, Smith, French, & Mezzich, 1980). In a sense, prototype theory offers an interesting alternative to more classical reliability theory. Instead of assuming a specific true score and a single set of conditions, the focus turns to the generalizability from one set of ratings or observations to another.

Cantor and Mischel (1977) ~~hypothesized~~ that, if a person has been categorized as a prototypical member of a particular category, the observer will be biased to attribute (whether correctly or not is open to question) all sorts of characteristics typical of that category to the new person. These additional attributes are not necessarily those which have been actually observed. This hypothesis was tested in a recognition memory experiment in which subjects were presented with trait descriptions of fictitious targets and were later required to rate a list of terms stating how confident they were that these traits had appeared in the original description.

The ratings confirmed that subjects recognised two of the targets as being a prototypical extravert and a prototypical introvert and the other two as being unrelated to E and I. The results of the recognition task demonstrated that the prototypes E and I did have a biasing effect on memory. Although subjects recognised accurately which traits had appeared in the original descriptions, they also gave more confident recognition ratings to the novel traits highly related to the prototypes than to the less related or unrelated traits.

Further studies by Cantor and Mischel (1979b) confirmed and extended these prototypicality effects by varying the degree of prototypicality of the targets. They used a pure target described with all E or all I characteristics, a mixed target who appeared as partly E and partly I, and an inconsistent target who had contradictory E and I characteristics. Subjects performed two recall tasks, immediate and delayed, in which they had to write down as much of the description as they could remember. They also wrote a short personality impression of each target. It was found that subjects recalled more information about the pure targets than the mixed or inconsistent targets.

Cantor and Mischel also concluded that the degree of prototypicality of a target with respect to a particular personality category "may indeed influence the ease with which information about that character can be encoded, retrieved and elaborated" (p. 204).

The speed of processing was examined by Erdle and Lalonde (1986). They examined whether personality traits functioned as cognitive prototypes by affecting processing speed for behavioral information concerning the self. On the basis of between and within subjects analyses of responses and response latencies to a personality inventory, they concluded that personality traits appeared to serve as cognitive prototypes.

If knowledge about any given trait category is structured around and represented in memory as a prototype and if the prototype serves as a symbol or reference point for that category, how might situational factors affect person perception? In part, it would seem that prototypicality judgements would be somewhat dependent on the amount of information about that person which is available to the perceiver. If the prototypicality judgement is based on limited or casual observations, attention may be directed towards more specific, central category attributes. Under such limited or "restricted view" conditions the prototypicality estimate may be more sensitive to situational variables. Is the situation itself conducive to the display of the attribute under observation? For example, it would be consistent to expect loud, boisterous behavior at a party rather than at a symphony concert. At what level of abstraction is the categorization being made?

Cantor, Mischel and Schwartz (1982) outline an abstract feature set prototype which seems useful in the description or categorization of persons functioning in a social context. It is less restricted than a prototype system based on only a few exemplars. An abstract prototype system is better able to represent the variety of features that the perceivers associate with different persons or situations. For these reasons, the current research has chosen to use the abstract feature prototype system (i.e., I-E, N-ES) as it seems best suited to deal with the complexity of social knowledge and person perception.

D. Prototypicality Judgements

The expectation that judges emphasize breadth of features and consider the goodness of fit when assessing a target's prototypicality is in line with the trend in personality research to search for general coherence in a person's overall behavior. The implicit personality theories of lay persons are drawn from a number of sources such as social categories like gender, race and occupational level as well as more subtle person variables such as facial expression, tone of voice and gestures.

Cantor and Mischel (1979a) suggested that given extensive data about a target individual, prototypicality ratings should be a function of at least three factors: (1) the number of category consistent attributes apparently possessed by the person, (2) the degree to which these attributes dominate or stand out in the total configuration, and (3) the number of attributes possessed by the target which are incompatible or inconsistent with the category in question (p. 33).

It is more likely however that prototypicality judgements will be made on the basis of less available information concerning the target, a restricted rather than expansive view. Judgements are often made on the basis of only partial, fragmented data obtained under conditions of limited observation. Cantor and Mischel (1979a) hypothesized that under such restricted view conditions, prototypicality would be increased when the target individual exhibited the most distinctive category attributes consistently and intensely across situations particularly in unusual, non-normative situations. For example, under limited conditions, it is critical that the prototypical extravert frequently and consistently exhibit outgoing behavior — the behaviors that are commonly identified as being most central to the abstraction of extraversion. However, a focus on the main trait attribute or attributes does not mean to imply that all category members must demonstrate the exact same patterns of behavior in the same situation, rather that the targets should exhibit as much behaviour as possible that is closely related to the central trait attribute. Presumably, a target individual who is judged to display prototypic behavior in unusual situations, will tend to be perceived as even more prototypical in situations where such behavior is expected and perhaps routine.

Briefly then, perceived prototypicality, under restricted view conditions, appears to be a function of the degree of intensity and consistency with which distinctive features of a particular category can be expected to be exhibited by the target individual in normative situations.

E. The Present Study

Eysenck's theory of personality fits well with the idea of prototypes in person perception. Human behavior is seen along a continuum rather than categorization on an all or none basis. At the core of Eysenck's theory are the prototypical I-E, N-ES personalities which can be more or less clearly defined. Secondly, I-E and N-ES are considered as superordinate traits amenable to viewing as abstract prototype sets. Other category members gain inclusion on the basis of the degree to which they resemble the core elements. Proximity to the core serves as an index ~~to the~~ degree to which any given element, in this case the target individual in the video presentation, resembles the implicit prototype. The closer the target is perceived as being to the core, the more prototypical the personality type. Moving away from the category exemplars, i.e., the prototypes or superordinates, membership becomes less and less clear. Thus, members can be ordered along a continuum of prototypicality. In implicit personality theory, the prototypes provide a semantic pivot around which other category members are organized (Broughton, 1984).

Since, in the present study, an attempt is being made to construct a personality measurement device suitable to the needs of a specific population, the mentally retarded, the video format provides both a semantic and a visual pivot for categorization. Therefore, a prototype strategy involves the systematic assignment of a given test item to an appropriate category in terms of its perceived resemblance to an implicit personality prototype.

Prototype strategy was introduced into the current study as a check on the degree of prototypicality of the trait exemplars which we were attempting to portray in the video version of the revised personality inventory (Das, Schockman-Gates, Murphy, 1986). Earlier results, reported in Study One (Kabzems & Das, 1986), had led to the concern that some of the exemplars (actors and scenes in the video) were fuzzy sets, that is that the actors were being perceived as inconsistent in their portrayals or out of step with the background of the scene. These problems, it was suspected, were leading the judges to consider the targets as displaying contradictory characteristics when a clear prototype portrayal was intended. A consensual prototype was desirable in the video portrayals particularly when the materials were intended for a population which has difficulty with cognitive processing skills.

In the current study it was decided that a variation of the trait inference technique would be used. That is, rather than asking how likely is it that an extravert, for example, would be active, independent or sociable, etc., it was asked how well a given list of trait descriptive terms (Eysenck, 1967) described each of the main characters on the screen . . . do the terms active, independent and sociable, etc. accurately describe this person? There is the problem of the artificiality of the stimulus materials used, specifically with respect to the adjectives which appeared on the rater checklists. However, there is the fact that other inventory development research to date has not had the benefit of the video, that is the integration of nonlinguistic information, as an aid in categorization. A potential problem in any personality research has been the reliance on adjectives as stimuli. The provision of descriptors (adjectives) which point to certain trait labels, may supply raters with trait prototypes or concepts that otherwise might not have been used (Erdle & Lalonde, 1986). Since I-E and N-ES are considered as superordinate traits, there is difficulty in finding common adjectives which could be used as superordinate trait descriptive terms (Goldberg, 1982).

Previous categorization studies have successfully dealt with the trait of extraversion in both naive and expert raters. Furnham (1984) was able to outline an implicit theory of neuroticism in a non-expert group. Furnham discussed the difficulties most textbooks have in arriving at clear definitions I-E, N-ES, particularly the latter dimension. For example, the term neuroticism has been dropped and replaced by the term neurotic disorder in the latest Diagnostic and Statistical Manual of Mental Disorders (DSM-III) in 1980. A neurotic disorder is described in the DSM-III as:

> A mental disorder in which the predominant disturbance is a symptom or group of symptoms that is distressing to the individual and is recognized by him or her as unacceptable and alien (ego-dystonic); reality testing is grossly intact. Behavior does not actively violate gross social norms (though it may be quite disabling). The disturbance is relatively enduring or recurrent without treatment, and is not limited to a transitory reaction to stressors. There is no demonstrable organic etiology or factor. (p. 364)

According to the DSM-III description, neurotic disorders are not normally distributed in the population. They are also considered to be symptomatic rather than an actual personality disorder in themselves. A neurosis on the other hand was considered in previous editions of the DSM to be a functional disturbance.

Although Eysenck admits ambiguities in the concept of neuroticism, he offers a relatively uncomplicated definition in the EPQ Manual (Eysenck & Eysenck, 1975). A typical neurotic was described as:

> an anxious, worrying individual, moody and frequently depressed. He is likely to sleep badly, and to suffer from various psychosomatic disorders. He is overly emotional, reacting too strongly to all sorts of stimuli, and finds it difficult to get back on an even keel after each emotionally arousing experience. His strong

> emotional reactions interfere with his proper adjustment, making him react in irrational, sometimes rigid ways. . . . If the highly neurotic individual has to be described in one word, one might say that he was a worrier; his main characteristic is a constant preoccupation with things that might go wrong, and a strong emotional reaction of anxiety to these thoughts. (pp. 9-10)

For Eysenck, neuroticism is just one prominent personality trait which is normally distributed in the general population. This use of the term is merely descriptive and does not imply pathology.

In Eysenck's theory, the dimension of neuroticism is conceived in terms of individual differences in the reactivity and liability of the autonomic nervous system. Subcortical brain structures of the limbic system and the hypothalamus, known collectively as the visceral brain, have been hypothesized to underlie the dimension of neuroticism. Neurotics are deemed to have a higher level of chronic visceral brain activation than do emotionally stable individuals. Under conditions of extreme emotional arousal, the separation between the dimensions of extraversion and neuroticism break down. The visceral brain may supplement the reticular activating system's arousal of the cortex, evoking in the individual with a predisposition towards neuroticism an even higher level of arousal than would otherwise be possible. In general, neuroticism is tied to task performance in that it can increase motivation or it can disrupt performance by producing worry or task irrelevant behaviors.

As the categorization of neuroticism is not precise in these commonly utilized definitions, it was of interest to see whether or not categorization of the targets would be achieved in the video ratings. The crux of the matter is that the scale, in this case the video, composed of items high in prototypicality should be a more valid assessment device than one which has not taken prototypicality ratings into account. It is assumed that a scale constructed according to a prototype strategy would demonstrate greater predictive strength than one developed simply on the basis of factor analysis.

In summary, test construction strategies need to be compared in a fair and rational manner against relevant social criteria. Prototype analysis appears to be an appropriate tool for the assessment and development of the video technique. A strategy including the use of prototypicality judgements for systematically scaling or evaluating each item and then using only the best items for inclusion in the final instrument should, in rational methodology, produce the best scale of its class. The implications of prototype theory for personality assessment are twofold: (1) the development of appropriate assessment devices and (2) the validation of such devices against important social criteria. To begin, one needs to discern the goodness of fit regarding the abstract prototype sets (superordinate traits) presented in the video instrument.

The use of raters with regard to the trait dimensions of the character portrayals in the video is based on the use of conceptual prototypes in person perception. The implication is that although the features of extraversion and neuroticism can vary considerably, some features (supposedly the trait adjectives) are more associated with these categories than others. The presence of the more associated features in a given instance (i.e., a character portrayal in the video) makes that instance typical of the category. The typicality of an instance is a critical determinant of categorization since the more typical an instance, the more accurately, quickly and reliably it can be categorized (Cantor et al., 1980).

The raters were to judge each character in each scene based on a list of exemplar trait adjectives for introversion-extraversion and neuroticism-emotional stability. The trait adjectives were drawn from Eysenck's organization of selected traits. The prototypicality ratings were combined along dimensions to give an estimate of how the character portrayals compared with the conceptual prototype for the particular trait as outlined by the trait adjectives.

The prototype approach was chosen for the current research as a means of checking the content validity of the video format. In order to demonstrate the content validity of a set of test scores, one must show that the behaviors reflected in the testing are a representative sample of behaviors to be exhibited in a specified performance area (APA, 1974). For the current study the specified areas were introversion, extraversion, neuroticism and emotional stability.

F. Method

Subjects

The students and instructors of two spring session university courses agreed to participate in the prototype ratings of the video instrument. One group consisted of undergraduate drama students and the other, a group of doctoral level students in educational psychology. The age and group data can be seen in Table 15.

Table 15

Means, Standard Deviations, Ranges of Age and Gender for Prototype Raters (N = 24)

		Age*			Gender	
Raters	N	Mean	SD	Range	Male	Female
Drama	17	27.7	5.9	19 to 37	4	13
Psychology	7	34.7	6.8	26 to 42	2	5
Total	24	29.8	6.8	19 to 42	6	18

* Age is in years

An additional rating of the video instrument in terms of visual balance, acting bias and writing bias (for each character on a five point scale) was done by the two members of the Drama Department staff who had developed the script and directed the filming of the video instrument based on the revised questionnaire.

G. Instruments and Procedure

The Video

The video version of the Revised Eysenck Personality Inventory (REPI) consists of 26 questions, 13 questions each for extraversion and neuroticism. The items correspond directly to the questionnaire version but without the social desirability scale. The set of short video episodes was developed by members of a professional theatre company based on the REPI questions and after observational periods spent in home and work settings common to individuals with mental disabilities residing in a large metropolitan community. Each scenario involves the presentation of two opposing types of behavior such as an introvert and an extravert at the breakfast table. One of the two hosts appears at the end of the scene to ask both the question as it appears in the questionnaire version and "Which person is more like you?" The faces of the main actors are presented in a freeze frame, split screen image and held for 15 seconds. The freeze frame in essence was representing the variables.

Adjective Checklist

Five polar adjectives, one set for each of the four personality dimensions (i.e., 20 adjectives) were taken from Eysenck's (1967) personality classification (see Table 16). Category (trait) names were not used on the checklists.

Procedure

The raters were briefed as to the purpose of the video instrument by giving them each a copy of the introductory message which appears before the question portion of the video (see Appendix G). They were told:

> In this experiment you will be asked to watch a videotape comprised of 26 scenes, each of which has two main characters. What we are asking you to do is to decide whether or not each adjective in the list on your sheets could be used to describe each of the characters as you see them portrayed.

There were no presumed explicit prototype conditions, nor was it suggested that the scenarios were in any way fully representative of the character's personality. The raters were

Table 16

Adjective checklist (4 forms) used by the video prototype raters

	Character A		Character B	
	Yes	No	Yes	No
active	___	___	___	___
independent	___	___	___	___
sociable	___	___	___	___
optimistic	___	___	___	___
outgoing	___	___	___	___
inhibited	___	___	___	___
sensitive	___	___	___	___
quiet	___	___	___	___
reserved	___	___	___	___
passive	___	___	___	___
lonely	___	___	___	___
disorganized	___	___	___	___
suspicious	___	___	___	___
undependable	___	___	___	___
moody	___	___	___	___
stable	___	___	___	___
calm	___	___	___	___
objective	___	___	___	___
even-tempered	___	___	___	___
responsible	___	___	___	___

• Character A refers to the actor/actress on the left hand side of the screen and B to the character on the right hand side.

making their prototypicality judgements on a limited view basis. They were not asked to attempt to store the details of the action presented, but in essence had to generate a prototype based on their perceptions of the video scenes. The video ratings were not simply a record of controlled observations.

Administration

Administration time was approximately one and a quarter hours. The data from the adjective checklists (trait ratings) was tabulated. There were no significant differences between the two groups of raters in their prototypicality judgements despite the fact that the educational psychology graduate students might be expected to have a more explicit theory of personality available to them. Based on a two-thirds majority rating only the trait of extraversion in eight out of thirteen instances was clearly perceived as the intended trait portrayal. In one instance it received equal weight with emotional stability and thus cannot be considered as clearly identified. Using the same majority rating, only one other trait, emotional stability, was clearly identified and then only in one instance out of thirteen (see Table 17).

Table 17

Perceived Trait Portrayals: Correspondence with Intended Trait Portrayals*

Group	Introversion**	Extraversion	Neuroticism	Emotional Stability
Drama (N=17)	8	12	5	6
Psychology (N=7)	6	11	7	8
Total (N=24)	6	11	5	6

* Regardless of percentage endorsement
** There were 13 intended portrayals of each of the traits

Perhaps a better way to look at the data is to take the simple rank, regardless of the percentage endorsement (see Table 18). (The letters A and B in this chapter refer to the character portrayals on the left and right frames of the screen, respectively.) This view demonstrates clearly that extraversion is the most commonly judged trait aspect which corresponds to the intended portrayal of a trait aspect in the video. If one includes the instances in which E received equal weighting with ES, then all the prototype judgements for the extraversion trait aspect correspond with the intended trait portrayal. Neuroticism receives the fewest matches between the raters' judgements and the intended portrayal. Looking at the data yet another way, from the point of view of the 'nil' ratings (i.e., no adjectives were checked for that particular trait aspect by the rater) a different picture emerges (see Table 19).

When one looks at the trait characteristics considered to be incompatible or inconsistent with the portrayals in the video, it can be seen from the results that the raters have a better developed implicit theory of neuroticism or what might be considered the typical behavior of a neurotic type individual. The raters appear to have no difficulty in specifying the prototypes. They appear to hold a shared implicit personality theory or some commonly shared frame of reference. The same appears to be true for the concept of introversion, but to a lesser degree. Thus, the raters were able to appropriately and clearly rule out neuroticism in 69% of the presented instances, introversion in 31%, emotional stability in 21% and extraversion in 18%. It appears as well that the raters had more loosely defined boundaries for the prototypes of extraversion and emotional stability. The raters seemed to be organizing the video portrayals into categories by evaluating their goodness of fit in a limited number of categories, but the boundaries for these categories appeared to vary considerably. On the whole, the raters appeared to be reasonably accurate in their ability to detect the characters in the video that were intended to portray extraversion or which were not intended to portray neuroticism. It must be kept in mind that in the prototype studies referred to earlier in this section, raters were only concerned with making decisions concerning trait aspects along a single dimension so in the present study more decision making was required on the basis of

Table 18

Perceived Trait Characteristics by Rank and Percent (N=24)

	Intended Portrayal		Perceived Portrayal	
Question	A	B	A	B
1	N	ES	I (71%), N(54%)	E (75%), ES (42%)
2	E	I	E (63%), ES (38%)	I (58%), N (29%)
3	ES	N	ES (46%), E (38%)	I (33%), N (25%)
4	ES	N	ES (54%), I (29%)	N (39%)
5	N	ES	I (75%), N (33%)	E-ES* (58%)
6	E	I	E-ES (46%)	N (58%), I (29%)
7	E	I	E-ES (71%)	I (54%), N (29%)
8	E	I	E (79%), ES (46%)	I (58%), ES (33%)
9	ES	N	E (50%), ES (42%)	I (71%), N (46%)
10	I	E	I (50%), ES (38%)	E (88%)
11	ES	N	ES-E (54%)	N (50%)
12	ES	N	ES (63%), E(33%)	N (42%), I (33%)
13	ES	N	E (54%), ES (38%)	E (42%), I (38%)
14	I	E	ES (58%), I-E (42%)	E (63%), ES (29%)
15	E	I	E (54%), ES (46%)	ES (54%), I (33%)
16	ES	N	ES (58%), E (38%)	N (33%), E (29%)
17	N	ES	N (42%), I (25%)	ES (79%), E (75%)
18	I	E	ES (33%), I (29%)	E (75%)
19	I	E	I (33%), ES (46%)	E (96%), ES (50%)
20	N	ES	I (38%), N (33%)	ES-E (58%)
21	I	E	I (58%), N (25%)	E (79%), ES (46%)
22	E	I	E (67%), ES (54%)	ES (50%), I (46%)
23	N	ES	I (33%), N (29%)	ES-E (63%)
24	E	I	E (96%), ES (42%)	ES (50%), I (29%)
25	E	I	E (92%), ES (50%)	ES (46%), I (33%)
26	ES	N	ES (46%), I (29%)	E (63%)

* Equal percentage

Table 19

Trait Characteristics Considered Incompatible with the Video Portrayal*

	Intended Portrayal		Incompatible Trait Characteristics	
Question	A	B	A	B
1	N	ES	E	I, N
2	E	I	I, N	E
3	ES	N	N	ES
4	ES	N	N	ES
5	N	ES	E	N
6	E	I	N	ES
7	E	I	N	E
8	E	I	N	E
9	ES	N	N	E
10	I	E	-	I
11	ES	N	N	E, ES
12	ES	N	N	ES
13	ES	N	I, N	-
14	I	E	N	-
15	E	I	I, N	-
16	ES	N	N	-
17	N	ES	ES	N
18	I	E	-	I, N
19	I	E	N	I, N
20	N	ES	ES	I, N
21	I	E	-	I, N
22	E	I	I, N	-
23	N	ES	ES	N
24	E	I	I	N
25	E	I	I, N	N
26	ES	N	N	-

* Based on a two-thirds majority of the raters.

scant evidence and under time pressures as the ratings were done in a group situation with the items appearing in a continuously rolling format with limited opportunities for stopping the video.

Due to the fact that the trait aspects associated with extraversion seemed to be the most readily identified and had the greatest correspondence with the intended video portrayals, the possibility of what might be termed "perception overlap" with regard to the trait aspects of I-N and E-ES was examined. Cantor and Mischel (1979a) had found that perceived prototypicality was highly related to a "breadth differentiation" score. Breadth differentiation referred to the breadth or number of attributes possessed by the target individual and associated with that particular category. Thus, the greater the number of relevant attributes, the greater the prototypicality of the target. This approach emphasizes the number of attributes observed in the target, not necessarily including specific critical features considered necessary in the classical view of category membership. This approach also attempts to focus on molar characterization rather than molecular behavior.

The breadth differentiation score was computed by subtracting the number of introverted attributes from the number of extraverted ones listed in each person description. A variation of that technique was tried in the present study, only using the trait categories which seemed to be overlapping, that is I-N and E-ES since the adjective base for each category was deemed equivalent (5 items in each category). The results of the breadth differentiation comparisons are reported in Table 20.

It can be seen from these results that there is considerable overlap in the perceptions of E-ES under the limited view conditions and that little overlap exists between the trait aspects of I and N. The category boundaries associated with extraversion and emotional stability appear to be wide.

Finally, in this section the consensual ratings of the two members of the Drama Department are given in Table 21.

Each character in each scene was rated on a five point scale in the following categories: visual balance (physical appearance of the characters is equitable, proportion of

Table 20

Breadth Differentiation Scores: Low Breadth Items* (N=24)

Question	Character	Intended Portrayal	Overlapping Traits	Valid Sample	%Overlapping
3	A	ES	E-ES	24	63
4	A	ES	E-ES	24	50
5	A	N	I-N	24	50
5	B	ES	E-ES	24	84
6	A	E	E-ES	24	75
7	A	E	E-ES	24	92
8	A	E	E-ES	24	54
9	A	ES	E-ES	23	78
11	A	ES	E-ES	24	79
13	A	ES	E-ES	23	60
14	B	E	E-ES	24	54
15	A	E	E-ES	24	75
16	A	ES	E-ES	24	71
17	B	ES	E-ES	24	92
19	A	I	E-ES	22	50
20	A	N	I-N	24	71
20	B	ES	E-ES	[illegible]	92
22	A	E	E-ES	24	75
23	A	N	I-N	23	62
23	B	ES	E-ES	23	92
24	B	I	E-ES	23	61
26	A	ES	E-ES	23	52

*Minimum 50% of valid sample demonstrating overlap.

Table 21

Drama Department Ratings of the Video Instrument*

	Intended Portrayal		A			B		
Question	A	B	Visual Balance	Acting	Writing	Visual Balance	Acting	Writing
1	N	ES	4	4	5	5	4	5
2	E	I	5	4	5	5	2	5
3	ES	N	4	3	4	4	3	4
4	ES	N	1	1	4	1	1	4
5	N	ES	4	4	4	3	5	4
6	E	I	5	4	4	1	4	4
7	E	I	4	5	4	4	5	4
8	E	I	5	4	4	5	5	5
9	ES	N	4	5	4	4	3	4
10	I	E	4	**	**	1	**	**
11	ES	N	2	4	4	3	4	4
12	ES	N	4	3	4	4	3	4
13	ES	N	4	5	4	4	5	4
14	I	E	3	3	3	1	3	3
15	E	I	5	3	5	5	4	5
16	ES	N	2	2	**	5	5	**
17	N	ES	1	5	**	4	4	**
18	I	E	2	2	2	3	4	2
19	I	E	3	4	4	4	4	4
20	N	ES	4	4	4	4	4	4
21	I	E	3	2	4	3	5	5
22	E	I	4	4	4	4	4	4
23	N	ES	2	4	**	4	3	**
24	E	I	4	5	1	4	5	1
25	E	I	4	4	4	2	4	4
26	ES	N	5	1	4	1	3	4

* Each item was rated on a 5 point scale with 5 being the highest score.

** Indicates no rating was given.

close-up shots, eye contact with the camera and so on), acting bias (the quality of the dramatic presentation) and writing bias (the quality of the script). No predictable, consistent portion of the Drama Department raters' ratings was found that agreed with the various aspects of the prototypicality raters' judgements on other than a chance basis.

Items judged to be poor, that is, receiving no rating or a score of two or less on at least two of the three criteria (visual balance, acting, writing) did not demonstrate any pattern in the factor loadings. The poor items, as selected by the Drama Department raters, did however fail to show any significant correlation with the questionnaire form of the personality inventory.

H. Discussion

An objective of the study was to try and establish whether or not the two groups of raters, undergraduate drama students and doctoral level educational psychology students, would agree on the prototypical features of the traits presented. There were no significant cohort differences. Secondly, the raters appeared to be able to decide which portrayals or behaviors they would not consider to be of the neurotic variety, but they appeared to have difficulty discerning between extraversion and emotional stability. There was considerable overlap in the perceptions of E and ES. Even though the categories I and N occasionally overlapped, the raters appeared to be more clear in their prototypic judgements of these two unrelated dimensions. (The implications of the perceptual overlap evidenced by the raters for the correlations between the two versions of the personality inventory will be discussed later in this research.)

In the process of ranking the degree of relatedness of various trait adjectives to the two superordinate traits extravert and introvert, it was shown that not all superordinate traits could also serve as coherent trait prototypes (Cantor & Mischel, 1977). They found that the pool of adjectives rated as highly related to introversion was considerably smaller than was the pool for extraversion. This difference in the availability of highly related items may in turn reflect a difference in the richness of the associative network for these two trait concepts.

Possible variations in the fullness or richness of the network structure for the two traits may account for the differences observed by Cantor and Mischel in their study regarding the degree of biased processing of trait material. In this sense the current results appear to support this premise. If lay persons (in terms of personality theory) were expected to make judgements concerning the presence or absence of certain personality characteristics in some sort of a referral process based on an adjective checklist, it is obvious based on the present results that some categories (E-ES) would be overrepresented. In the earlier review of the literature, reference was made to the study by Fraser, Leudar, Gray and Campbell (1986) regarding psychiatric and behavior disturbance in mental handicap where it was found that psychiatric and behavioral indices of disturbance were not strongly related. Thus, the chances of a highly neurotic individual being identified and referred for appropriate training or habilitation services on the basis of a naive rater's judgement would likely be low. In the same vein, there would be an overabundance of either extraverted or emotionally stable types because the number of "hits" would be greater. (A similar parallel can be drawn with regard to accuracy in teacher initiated referrals for intellectually talented school children.) Perhaps what has occured here is an error in stereotype accuracy (Anastasi, 1976).

According to Cantor and Mischel (1979a) a reliance on conceptual prototypes to structure one's perceptions of people has its costs as well as its values. In the process of categorization, homogeneity within groups tends to be emphasized (tarred with the same brush as it were) and there is the possibility that intergroup differences become magnified. Attention to detail becomes less significant and variability or inconsistencies in the stimuli may go unrecognized. In person perception, this type of error might be called stereotyping and may encourage future distortions in perception and memory. On the positive side, reliance on conceptual prototypes can provide economy in cognitive processing. Daily functioning can be facilitated as the amount and complexity of stimuli can be limited. Categorization of stimuli can simplify the encoding, storage and retrieval of information concerning the particular stimulus as well as assisting in the making of inferences, judgements and predictions concerning the stimulus.

In social interaction and person perception research, the problem has often been defined as one of explaining the gained impression by the variation in nonverbal behavior. Thus, a videotape method had the potential of increased validity since the recording could incorporate more of the numerous aspects of the situation which might be relevant as well as being able to take into account that the types of contexts also affect perceived prototypicality. The validity of judgemental ratings is by no means simple. Naive raters were chosen for this study because the eventual viewers of the video will be expected to have some acquaintance, at least implicitly, with the prototypes or superordinate traits so that they may compare their own perceived characteristics in relation to those presented via the video. The question then arises for our target population, the mentally retarded, concerning the boundaries of relatedness from which items might be chosen to represent I-E and N-ES. Moderate category examples may not prove to be appropriate for a population such as the MR which has difficulty with social perceptions.

A second question regarding the potential validity of the video instrument has to do with the differences in judgement which can arise from the judges' (raters and subjects) attention to different areas from the same stimulus portrayed in the video. Part of the rationale behind trying to develop an alternative method of assessment has to do with variations in cognitive processing between retarded and non-retarded groups. The retarded tend to rely on simultaneous rather than sequential information processing strategies. An artificial situation may arise since the video raters are likely to rely more on the dialogue (sequential in nature) than would be the MR when making their prototypicality judgements. The MR subjects may rely on facial or postural clues only. (Should the facial cues in the video presentation be made more salient by providing additional close-ups within the scenarios?)

Several sources of error exist in the reliability of the raters' judgements. A standard issue is how representative the raters were with regard to the possible population of judges. The reply is that they were not representative from the population at large, but they were felt to be representative of the group which usually participates in these types of experiments.

Further differences can always occur due to gender, familiarity with material to be judged in terms of culture, access to experimental hypotheses, fatigue from lengthy sessions, the difficulty of maintaining reliability at real time speed and in addition the recognized problem of the inadequate definition of the adjectives used. All of the above problems were recognized and dealt with as required. (In the case of cultural familiarity with the materials, the response sheets of two of the raters from the educational psychology group were not used due to doubts about the "accuracy" of their cultural perceptions.)

Also dealing with the reliability of an assessment instrument is the fact that the more items in a test, the greater the reliability of the test. While this may hold true for a paper and pencil type measure there is some question as to whether or not it would hold for items in real life (or in the video) as a prototype may already have been generated. Improved reliability depends on developing criteria which can be assessed with minimal inference.

The current research has attempted to use several approaches (prototype strategy, factorial analysis) in the development of an assessment instrument which could both expand the scope of the theoretical model and also provide an important, technologically appropriate advance in the area of personality research. Validation of prototypical features is also a preliminary step in the development of adequate definitions which may then be utilized effectively in the description and diagnosis of personality disorders.

VI. Discussion

A. Two Phases of the Validation Procedure

In Study One, the two forms of the revised inventory were given to 222 adolescent MR subjects. Factorial analysis using varimax rotations and principal components factoring indicated that two major factors accounted for 26.5% of the variance in the questionnaire version and 22.5% of the variance in the video format.

In Study Two, the two forms of the inventory were given to 84 adult, vocationally handicapped subjects. The same statistical procedures used in Study One were applied and it was found that two major factors accounted for 34.7% of the variance in the questionnaire and 31.3% of the variance in the video for the subjects whose primary disability was given as mental retardation. The results are consistent with Eysenck's personality theory, thus demonstrating support for the application of the trait categories I-E, N-ES to the mentally retarded. The two studies have demonstrated the generality of the factor structure I-E and N-ES.

The second study served as a vehicle for evaluating the durability of both the questionnaire and video items for a new sample. Results demonstrated the durability (cross-validation) of the items, particularly for the questionnaire version. The results also indicated that meaningful responses could be obtained from individuals with mental retardation in both a context free (questionnaire) and a stimulus specific (video) situation.

Eysenck's scales for the measurement of the dimensions of personality have been subject to a gradual process of refinement. It can now be assumed, with the current supporting evidence that (1) there exist in the mentally retarded differences in personality (traits) which can be measured by questionnaire data, (2) personality factors in the mentally retarded can be identified via factor analysis, (3) that persons with mental retardation can respond reliably and consistently to self-report measures (for a discussion of the use of self-report measures with the retarded (see Kabzems, 1985), (4) that the mentally retarded share some implicit prototype perceptions of personality dimensions with nonretarded lay persons. Therefore, if personality traits in line with Eysenck's theory can be outlined in a mentally retarded and vocationally handicapped group, then by extension it should also be worthwhile applying the principles of I-E, N-ES to vocational habilitation techniques for these individuals. The advantage of Eysenck's theory is that it allows for concrete predictions and tests of its validity. Information on personality should assist in fitting work assignments or vocational training procedures to individuals. In dealing with the vocational habilitation of the mentally retarded, personality differences may be regarded as essential complements to cognitive differences.

B. The Prototype Analysis of the Video Portrayals

Preliminary analyses identified a high correspondence between the raters' trait rankings and the intended portrayal of the trait of extraversion. Initially it appeared that the raters were reasonably accurate in their ability to detect the video items which were intended to measure extraversion. Initially, it also appeared that there existed an agreement on the prototypical features of extraversion as presented in the video. These results seemed to fall in line with previous studies, using naive and expert raters, which concluded that the trait of extraversion was readily identifiable (Broughton, 1984; Cantor & Mischel, 1977; Cantor & Mischel, 1979b; Cantor et al., 1980). According to Cantor and Mischel (1979a), perceived prototypicality increases with increases in the ratio of category consistent attributes displayed relative to the total set of attributes displayed by the target portrayal or individual.

Since only one portrayal other than those for extraversion had obtained a match between the intended portrayal and the perceived portrayal it was decided to look at the pattern of mismatches and instances where the raters had not marked any of the adjectives in a trait category. The new perspectives revealed results much different than the initial analyses. In the pattern of mismatches, it was found that the trait categories of extraversion and emotional stability were frequently paired by the raters. The trait categories of introversion and neuroticism were infrequently paired and were more often rejected as trait categories for the video portrayals. In contrast to all but one of the previous researchers (Furnham, 1984) the current results suggest that naive raters do indeed have some implicit theories about personality, and that these implicit theories are clearer or more explicit, for the trait categories of introversion and neuroticism, particularly neuroticism. Conversely, whether due to the particular groups in the sample of raters or the difficulty in portraying emotional stability as being distinct from extraversion in a dramatic portrayal, the raters seemed to have a larger, more loosely defined basis for the categorization of extraversion and emotional stability, particularly extraversion.

Several practical and theoretical implications arise from these findings. In a practical vein, if naive raters (e.g., supervisors) were asked to identify individuals for vocational placement on the basis of I-E, N-ES (to be discussed later in this chapter), there would likely be a greater proportion of individuals inaccurately identified as emotionally stable extraverts than as neurotic introverts. Still in a practical vein, if the prototype raters lean towards rating the video portrayals as E-ES, would the vocationally handicapped, particularly the mentally retarded subjects, hold similar social perceptions resulting in a skewed response curve? This is what happened in the actual responses to the test instruments. The response curve was negatively skewed, suggesting that the non-MR raters and the MR subjects hold similar prototype conceptualizations. Alternatively, the MR groups may be affected by their own perceptions of socially desirable behavior and try to place themselves in the best possible light.

Two theoretical questions emerge. Does the video instrument better mirror natural person perception? Methodologically it is important to ensure that the items on the measuring instrument are interpreted similarly by all groups. In the present case, it seems that both the rater and subject groups share similar perceptions with regard to the video instrument.

The second question concerns the blending of a cognitive-social theory with a biologically based theory as complementary strategies in the development of a specific type of assessment device.

C. Theoretical Implications for Occupational Performance

One of the traits most characteristic of extraversion is sociability. Another major characteristic is related to impulsivity (a characteristic frequently ascribed to the MR, so perhaps it is no surprise that they should rate themselves highly on extraversion!). The current assessment devices, the questionnaire and the video, were based on the Eysenck Personality Inventory (Eysenck, 1965) which, according to Rocklin and Revelle (1981) is a scale which measures extraversion as a mix of sociability and impulsivity. The Revised EPI has attempted to avoid a built-in tendency for introversion to correlate with neuroticism.

In earlier versions of EPI, the extraversion scales and the neuroticism scales were slightly negatively correlated, even among normal subjects (Brody, 1972). This negative correlation between measures of allegedly orthogonal dimensions led Eysenck to construct the EPQ, but Rocklin and Revelle (1981) point out that on this latest revision, the extraversion subscale is composed of items which mainly measure sociability.

In terms of Eysenck's theory, introverts are expected to be superior to extraverts in vigilance tasks because the persistently heightened arousal level of introverts facilitates vigilant attention and prevents performance decrements which result from inhibition increments and consequent lowered arousal. Thus, if one assumes that introverts are chronically more aroused than extraverts (Eysenck, 1967) it is reasonable to predict that introverts will outperform extraverts in simple learning tasks, but that the reverse will occur on difficult tasks such as those requiring greater speed on a production line. This interaction has been reported at least eight times in the literature (Eysenck & Eysenck, 1985). Based on the distinctions between extraverts and introverts, that is, those who seek social stimulation and those who can deal with it effectively but do not necessarily seek out social interactions, there are certain jobs which would seem to be more desirable for certain personality types. For instance, social interactions seem to rank higher in occupations such as food service workers or kitchen helpers who work in close contact with co-workers than do cleaners or locker room attendants. It would seem that certain types of occupational choices and job performance could be accounted for in Eysenck's personality theory. However, there has been little research in this area.

At this point, several hypotheses could be put forward. Since, according to the theory, neurotic individuals in general and neurotic introverts in particular would be susceptible to stress, they might be expected to prefer jobs which are low in stress. If it is also true that extraverts are likely to prefer occupations which involve greater social contact then it stands to reason that introverted individuals would become overaroused and ineffective in their job performance if the job involved a relative absence of routine and considerable interpersonal contact. On the opposite side of the coin it may be that extraverted workers would not perform as well as they might in a job requiring routine activities.

Cooper and Payne (1967) investigated the premise that introverted workers are better able to handle routine work activities than are extraverted workers. They looked at light, repetitive jobs in a tobacco factory. Vocational adjustment was found to be negatively related to extraversion and neuroticism. Neuroticism was also related to absenteeism. Other studies reported by Eysenck (1971b) and Eysenck and Eysenck (1985) point to a better person-job match with non-neurotic extraverts in high stress jobs involving driving and flying.

Research has identified a number of behaviors that are related to the employment success of mentally retarded workers. These investigations have usually been confined to production or task related behaviors. Personality, motivation and social-vocational behavior have simply not been investigated as the task itself appears to be more important than the person-job match. A recent study by Salzberg, Agran and Lignugaris/Kraft (1986), based on information obtained from competitive employment settings, found that the primary concern of the supervisors was worker productivity. The employees who produced at a faster rate were more likely to be more highly valued than slower producing employees. They were also made aware of social behaviors which employers considered critical for employment success, possibly because they related directly to worker productivity. These social behaviors included following task instructions, giving assistance to co-workers when asked or required, and so on.

What happens if an individual finds himself in a position that is badly suited to his personality. If he remains in that position, his job performance is likely to deteriorate. For the mentally retarded, who often are not able to exercise much occupational choice, attempts to match vocational placements with specific personality characteristics may prove fruitful especially now that the present research has demonstrated the presence of certain personality characteristics which are amenable to empirical investigation.

> Retarded persons are today assigned to residential, educational, and vocational settings more as a reflection of somebody's sociopolitical philosophy concerning where they "have a right" to be than as a result of any systematic effort to achieve individualized matches between their person characteristics, including both assets and needs, and the advantages and requirements of various settings.
>
> Haywood, 1986, p. 18.

The practical relevance of the current study needs to be investigated in order to develop some simple applied predictions in a vocational training seting. Do individuals with high self ratings for extraversion do better in jobs requiring a higher level of social interaction? Do they stay longer at the job? Do they respond more quickly to changes in routine? Conversely, do self rated introverts have a higher rate of productivity on production line type tasks of a repetitive nature? Is the time on task greater or more consistent for introverts than for extraverts? Do extraverts perform better in tasks under heightened conditions of noise? Are extraverts more successful candidates for shift work and changes in circadian rhythms as would be predicted by Eysenck's theory? (Note that all of the above suggestions still need to be assessed in the light of the individual's level of cognitive functioning.)

D. Improvements to the Video Instrument

One needs to approach the topic with a proper respect for the idiosyncracies of human perception. What may be construed as an anomaly, namely the lack of agreement between the prototype ratings and the members of the drama department as to the constitution of a good scale item, should not bar the acceptance of the video instrument as a viable method of assessment. (See Appendix H for a list of the "good" questions.)

In the present study the video mode has been an appropriate method of assessment for a specific, predominantly non-reading group, the mentally retarded. A number of the questions, especially on the questionnaire version, have demonstrated good factorial validity and correlations across the two measures. Several of the questions, even in the prototype analysis, have been shown to be robust across the various measures. Finally, the instrument, particularly the questionnaire form, has demonstrated generalizability in two different groups of mentally retarded subjects — adolescent and adults.

The construction techniques employed in the video, namely the story line which follows the time frame of a day from waking until retiring and the use of multiple characters in the main roles, allows for the deletion and insertion of revised items.

The segmentation of the vignettes parallels the format of many television programs so the style of presentation was appropriate for the medium.

Since the intended audience for the video instrument was the MR, it would be prudent as well as ecologically valid to continue the use of naive raters in generating personality prototypes. The prototypes generated would be more likely to be allied with the person perceptions obtained in a mentally retarded subject population.

Several suggestions are listed below as methods for obtaining clearer examples of the desired prototypes which could then be incorporated into a revised version of the video instrument.

A naive group of nonretarded raters would each be asked to list all the behaviors and traits they associate with the terms introversion, extraversion, neuroticism and emotional stability. Out of the lists generated, those descriptors which were mentioned a predetermined number of times (depending on the size of the rater group) would be combined into a narrower list. The descriptors on the developed list would then be rated again on a five or seven point scale of prototypicality by the raters. Thus, a ranking of behaviors/beliefs/trait descriptors would be obtained indicating items most and least characteristic of the target traits through the eyes of naive personologists. The final tabulation could be used as the conceptual basis for the development of new video scenarios. That is to say, that the narrower/shorter list of descriptors would be used by the individuals responsible for devising the revised scenarios as a conceptual base for the scripting and direction of the scene. The question item itself would not be changed, rather the attempt would be to make the character portrayals in the scene "purer" examples of the personality dimensions. Centralization of the type of personality characteristics portrayed can also be assisted using the information provided in the breadth differentiation analysis which indicates an estimate of the degree of overlap between two personality dimensions.

Secondly, regarding the use of the video instrument, it needs to be remembered that personality traits do not exist in isolation from the stimuli that trigger the response. The test is not sufficiently refined at present to be considered a truly objective instrument not subject to social distortion. The items need to be designed so that the instrument can be presented in the same way to many persons in many places. (Technical advancements can generate problems as well as relieve them.) The video may suffer from a normal bias towards extraversion, for example, so it needs to ~~be discerned~~ whether the differences between the questionnaire and video versions are a result of the video items being weaker or do they reflect a "wish to be" in a stimulus bound situation, whereas the questionnaire in a context free situation allows the respondent to deny the "true" response. It might be asked of future respondents to answer in terms of what they typically do versus what they might like to do.

Finally, it was felt by the developers of the video that a reworking of the weak items would be possible given the new knowledge particularly from the prototype ratings — that is, that it should be possible to control the "video experience."

VII. Summary and Conclusions

The current research has indicated that mentally retarded adolescents and adults can respond in a reliable way to a structured inventory. Despite a negative skew in the distribution of their responses, identifiable individual differences were produced. It was shown that mentally retarded individuals possess a sense of self awareness and that they are generally consistent in their responses, both over time and across instruments. Therefore, prediction studies are now required.

Personality inventories must be recognized as intrinsically crude instruments and their application restricted accordingly (Anastasi, 1976). The behaviors measured by personality tests are known to be more changeable over time than those measured by tests of ability. Personality, as generally measured, probably has much to do with the sort of work and personal relations an individual seeks, but may have little to do with his or her competence when placed in a certain role.

Anastasi (1976), referring to questionnaire type personality inventories, points out that their construction and use are beset with special difficulties over and above the common problems encountered in all psychological testing. For example, personality is a product of social and historical conditions whereas temperament is more a psychological phenomenon resulting from biological evolution yet still susceptible to external factors. Dimensions of behavior such as introversion, extraversion, neuroticism, anxiety and impulsivity are very close to the concept of temperament conceived as a result of genetic influences.

In the current work, initial reliability of the instruments themselves was demonstrated. The questionnaire format, considered to be context free, produced the cleanest factor structure. The questionnaire appears to be a useful instrument for the assessment of personality dimensions in the mentally retarded. On the basis of both the factorial analysis and the prototype ratings, it appears that the video format is an appropriate mode of presentation for its intended audience, but that refinements in the prototype portrayals are required. The major contribution of factor analysis is in understanding the relationships among items and scales of personality measurement devices. Usefulness, in any predictive sense, is not an intrinsic property of factorially derived scales, but must be demonstrated empirically.

In terms of person categorization based on the current results, it appears that naive non-retarded raters and mentally retarded adults share similar implicit prototypes with regard to the personality dimensions of extraversion and neuroticism. No one has yet been able to describe how implicit prototypes come to be acquired so it is of interest to note that the non-MR and MR groups evidenced similar perceptions based on implicit prototypes. Of the personality dimensions presented in the measures, neuroticism seems to be the most precisely defined judging by the breadth differentiation scores of the prototype raters and the significant correlation of the supervisors' ratings with the clients' self ratings on both of the instruments. Extraversion seemed to be the most readily categorized dimension, but correlations between the measures and the external raters were not significant. Yet, ratings of workers by supervisors can reasonably be regarded as reports of typical behavior in the usual situation of which the supervisor is a part. It may also be that the video responses give a more accurate prediction of actual behavior since they are tied to specific situations which are not all directly work related.

The next step in assessing the reliability and validity of the personality assessment instruments should involve the application of Eysenck's model of personality in vocational training settings or in the workplace. Now that it has been shown that certain personality traits can be measured in adolescent and adult individuals with mental retardation, behavioral responses based on the theory can now be empirically evaluated. The ideas put forward by Eysenck over the last forty years can be assessed in their applicability to vocational placements for mentally retarded persons who evidence specific personality characteristics. In addition, it may be of value to ascertain the areas of vocational interest for the training centre clients. Thus, there is interest in the generation of testable implications arising from the theory.

Personality dimensions in mentally retarded workers can now be added to ability and achievement factors which could go some distance in making vocational predictions more accurate. In the general population, extraverts were found to have better short term recall than introverts, but over a longer period of retention, this was found to be reversed (Howarth & Eysenck, 1968). Since the mentally retarded have been shown to be capable of responding to personality measures, this has implications for further work in the measurement of self-concept or anxiety. The results of the current research also have implications for research into the relationship of personality variables to psychopathology or psychiatric impairment in the mentally retarded.

In Eysenck's theory, as applied to the general population, there is fairly general agreement that there is a predictable relationship between activation and behavioral efficiency. Susceptibility to stress has been reported in neurotic individuals and neurotic introverts in particular (Eysenck & Eysenck, 1985) so it may be of use to try to control levels of stress on the production line and then assess the functioning or productivity of the vocational clients. There is also a promising avenue of research in task performance under monotonous conditions, analogous to laboratory research on vigilance, which suggests that certain personality types (introverts) are better able to maintain arousal under these types of conditions. Conversely, the cognitive style in highly impulsive persons (extraverts) is consistent with assumptions of reduced efficiency in recording of information in terms of linkage with verbal symbols and memory. One of the predictions to be forecast here is that people who score high on extraversion (impulsivity) will tend to rely less on semantic aspects in the processing of stimuli and may require more non-verbal cues in skill acquisition. Secondly, associated with impulsive behavior are deficiencies in cortical and brain stem activating systems leading to lowered arousal and difficulties in maintaining appropriate vigilance levels in monotonous situations. In the prediction of performance, perhaps two groups of self-rated introverts and extraverts could be monitored under conditions of noise on a production line (Muzak or the noise of machinery) and their productivity levels measured. Other manipulations of arousal could be studied in the workplace as well.

The investigation of personality characteristics and vocational habilitation in the mentally retarded is potentially fruitful. The ability to acquire and maintain skills may be related to certain personality characteristics which can be measured. There are some pitfalls however in the direct application of Eysenck's theories and the work of researchers using subjects in the general population. For example, the studies to date have been related to occupational choices (e.g., engineering, business) which are not accessible to the mentally retarded who are more likely to be employed in "blue collar" or service industry work. On the other hand, these kinds of occupations are more open to specific behavioral (i.e., non-cognitive) interventions. In the discussion of the application of previous research to the mentally retarded, the reader should refer back to Table 7 in which it can be seen that 64.3% of the current sample would be ineligible for community based training programs. Thus, only 35.7% of the current sample would be appropriate candidates for initial studies based on Eysenck's theory.

All is not so glum, for further testing may demonstrate that the predictive validity of the video instrument better mirrors the actual performance of vocationally handicapped subjects in an appropriate job placement because of its stimulus bound nature.

Finally, if scientific accuracy is to be further enhanced, researchers must aim for progressively closer and more accurate approximations of the theoretical model by experimentation.

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APPENDIX A

Revised Eysenck Personality Inventory

1. Do you like lots of exciting things going on around you? (E)
2. Do you usually answer right away when people talk to you? (E)
3. Do things keep running through your head so that you can't sleep? (N)
4. Do you ever feel "just miserable" for no good reason? (N)
5. Do lots of things bug you? (N)
6. Do you always do what your parents and teachers tell you to do? (L)
7. Do you worry about awful things that might happen? (N)
8. Do people think that having you at their party makes it more fun? (E)
9. Do you like telling jokes or funny stories to your friends? (E)
10. Have you ever told a lie? (L)
11. Are you usually happy and cheerful? (E)
12. Are you usually nervous or jumpy? (N)
13. Do you like talking with people? (E)
14. Do you often feel fed-up? (N)
15. When you go to a party do you usually have a lot of fun? (E)
16. Are your feelings easily hurt? (N)
17. Are all your habits good ones? (L)
18. Do you like going out a lot? (E)
19. Do you worry for a long time if you feel you have made a fool of yourself? (N)
20. Do other people think of you as being someone who is always doing lots of things? (E)
21. Do you sometimes feel that life is just not worth living? (N)
22. Do you usually feel that you can do the things you ~~have to~~ do? (E)
23. Do you find it hard to get to sleep at night because you are worrying about things? (N)
24. Have you ever been late for anything? (L)
25. Do you feel that if things go wrong at first they will usually work out right later on? (E)
26. Do you often feel lonely? (N)

27. If you say you will do something do you always keep your promise? (L)
28. Do you usually want exciting things to happen? (E)
29. Do you often feel guilty about things? (N)
30. Do you sometimes lose your temper and get angry? (L)
31. Do you enjoy talking to other people a lot? (E)
32. Do you sometimes feel all shaky inside? (N)

APPENDIX B

NAME: ____________________

"FRIDAY"

QUESTION 1 ☐☐

QUESTION 2 ☐☐

QUESTION 3 ☐☐

QUESTION 4 ☐☐

QUESTION 5 ☐☐

QUESTION 6 ☐☐

QUESTION 7 ☐☐

QUESTION 8 ☐☐

QUESTION 9 ☐☐

QUESTION 10 ☐☐

QUESTION 11 ☐☐

QUESTION 12 ☐☐

QUESTION 13 ☐☐

QUESTION 14 ☐☐

QUESTION 15 ☐☐

QUESTION 16 ☐☐

QUESTION 17 ☐☐

QUESTION 18 ☐☐

QUESTION 19 ☐☐

QUESTION 20 ☐☐

QUESTION 21 ☐☐

QUESTION 22 ☐☐

QUESTION 23 ☐☐

QUESTION 24 ☐☐

QUESTION 25 ☐☐

QUESTION 26 ☐☐

APPENDIX C

FACTOR ANALYSIS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8
PN8	.66783							
PN13	.64788							.37322
PN10	.62949							
PN11	.62454							-.35345
PN7	.61636							
PN1	.60616							
PN4	.58494							
PN6	.56972			.31490				
PN3	.55686							
PN5	.53777							
PN2	.43618							
PE7		.74234						
PE6		.70819						
PE1		.68655				-.35108		
PE13		.64732						
PE3		.49440	.42859					
PE11			.77813					
PE9			.60419					
PE10				.81904				
PN12	.39244				.54278			
PE5		.33246			-.50931	.39958		
PN9	.48528				.49860			
PE12		.30442		.34178	-.49702			
PE2						.79084		
PE4							.77877	
PE8		.34906						.74556

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- - - - - - - - - - - - - - - - - - - - - -   F A C T O R   A N A L Y S I S   - - - - - - - - - - - - - - - - - - - - - -

  PC EXTRACTED    9 FACTORS.

FACTOR MATRIX:

            FACTOR  1   FACTOR  2   FACTOR  3   FACTOR  4   FACTOR  5   FACTOR  6   FACTOR  7   FACTOR  8   FACTOR  9

VE1          -.57099                             .38247
VE2          -.54115                                                                             -.47508
VE10         -.53241      .35973                             .30491
VN12          .51604                                        -.46496
VN10          .48634                                                                -.38341
VN11          .44556                                                                -.33589
VE11         -.44469                  .31268                                                      .35295
VN6           .44319                              .33681                             .43193
VE7          -.43847      .43295
VN7           .43593      .36727

VN9           .31600      .44342                            -.34563
VN13                      .44017                            -.30555
VE13                      .42369                                         .30149                   .34386      .35340
VE5                       .36449                 -.30086
VE8

VE9                       .40901      .44566                                                                 -.38582
VN1           .39758                  .43986     -.32359
VN2                       .39460      .43884
VE3          -.38772                 -.41692                                         .36689

VE4          -.30964                              .56243
VN8                                  -.31258      .44796

VN3           .35449                                         .63705

VN4           .41544                                                    -.46524                               .42382
VE12                                              .35674                 .43166     -.33016
VE6                       .39827                                         .41532                               .33189

VN5
```

APPENDIX D

Demographic Information (N = 84)

Length of Time at the Centre

	Number of Clients	%
< 6 months	9	10.7
6 months - 1 year	8	9.5
1 - 2 years	16	19.0
2 - 3 years	3	3.6
3 - 4 years	7	8.3
4 - 5 years	5	6.0
6 - 6 years	6	7.1
> 6 years	30	35.7

Referral Agent

	Number of Clients	%
Services for the Handicapped	8	9.5
Edmonton Assoc. for Community Living	3	3.6
Parents	30	35.7
Mental Health Services	7	8.3
Other	14	16.7
Catholic Social Services	8	9.5
Self-Referral	3	3.6
Alberta Hospital	5	6.0
Skills	4	4.8
Westfield Correctional Services	1	1.2
Physician	1	1.2

Primary Disability

	Number of Clients	%
Mental Health	16	19.0
Developmental Disability	63	75.0
Physical Handicap	4	4.8
Brain Injury	1	1.2

Residential Situation

	Number of Clients	%
Lives with Parents	35	41.7
Hospital	3	3.6
Group Home	14	16.7
Independent Apartment	12	14.3
Approved Home	6	7.1
Other	3	3.6
Room and Board	11	13.1

Guardianship Status

	Number of Clients	%
Independent	42	50
Partial Guardianship	15	17.9
Public Trustee	4	4.8
Total Guardianship	10	11.9
Trusteeship	13	15.5

Attendance Record

	Number of Clients	%
Less than 50%	4	4.8
50 - 80%	7	8.3
80 - 90%	19	22.6
91 - 94%	10	11.9
95 - 98%	20	23.8
99 - 100%	24	28.6

Mean attendance	89.6%
Median	95.5%

Explanation of Absence

	Number of Clients	%
Illness	49	58.3
No absence	9	10.7
Suspension	2	2.4
No reason	24	28.6

Work Skills Average (30)

	Number of Clients	%
0 - 12	6	7.1
13 - 20	48	57.2
21 - 23	22	26.2
24 - 30	8	9.5

Mean 18.6
Median 19

Supervisor's Ratings

12 clients rated as primarily introverted.

12 clients rated as showing no characteristics of introversion

21 clients rated as primarily extraverted.

5 clients rated as showing no characteristics of extraversion.

5 clients rated as primarily neurotic.

19 clients rated as showing no characteristics of neuroticism.

15 clients rated as primarily stable

9 clients rated as showing no characteristics of stability.

Raven's CPM (Raw Scores)

	Number of Clients	%
10 or less	9	10.7
11 to 15	26	31
16 to 20	19	22.6
21 to 25	13	15.5
26 to 30	8	9.5
over 30	9	10.7

Mean 18.88 S.D. 7.53

Median 17.00

Raven's IQ (Extrapolated)

Mean 64.88

S.D. = 21.03

Median 57.00

Est MA

Mean 11.612

S.D. = 3.63

Median 10.26

5 clients LT 7.00
12 clients EQ 18.00

4 clients 15.00 - 17.46

APPENDIX E

FACTOR ANALYSIS

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8
PE6	.83328							
PE13	.83178							
PE7	.77759							
PE10	.43906				.35520		.39633	
PN5		.79342						
PN7		.69370						
PN6		.61432	.38298					
PN13		.52805			.50718			
PN12		.42669				.38556		36813
PN9			.75008					
PN3			.72558					
PN1			.61480					
PE9			-.46614			.40907		
PN11		.39085	.44029	-.33230				
PN2			.42842		-.31560		.41117	
PE4				.74184				
PE5	.30718			.57843				
PE3	.33271	-.32033		.54857				
PE12				.42319		.30033	-.36124	
PE2					.77349			
PE8					.55282	.47624		
PE1						.65647		
PN4		.39837				.50479		
PN10			.32942				.66343	
PN8		.32306		.30877			.56303	
PE11								.85890

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- - - - - - - - - - - - - - - - - - - - - - F A C T O R   A N A L Y S I S - - - - - - - - - - - - - - - - - - - - - -

  PC EXTRACTED   9 FACTORS.

FACTOR MATRIX:

            FACTOR  1   FACTOR  2   FACTOR  3   FACTOR  4   FACTOR  5   FACTOR  6   FACTOR  7   FACTOR  8   FACTOR  9

VN2           .55089      .39408                                                                 -.40484
VN6           .53150      .31524
VN8           .52816                                                     -.42308
VN12          .52633     -.36529                                          .37513
VN10          .51972     -.47060                             .31002
VE1          -.51607     -.30661      .36010
VN9           .50653      .39965      .34911
VE8          -.49638      .43299      .36090
VN3           .49410                                                                  .38778                  .40423
VN11          .48355                              .34390
VN1           .48033                              .39333                  .32625
VE3          -.48011     -.36639
VE10         -.47491      .42894      .30088
VE9          -.46529                  .41994                                          .30141
VN5           .43639                                        -.43523                   .33744

VE5          -.32604      .56514                                          .37923
VN13          .33045      .42242                             .34898                                          -.34285
VE6                       .42169                             .40805

VN4           .39299                  .55458
VE12         -.30642                 -.51199      .40389                                          .36044

VE4          -.30013                  .30340      .58010
VE13         -.36609                              .53971                                                      .40979

VE7          -.36081                              .44396     .50072

VN7           .36520                                                      .43522

VE11         -.30301                              .36061    -.41783                  -.53952

VE2          -.40003     -.36158                                                                  .50066
```

APPENDIX F

Summary of Questionnaire and Video Scores Across Studies

Questionnaire Scores

	1984 (N = 241)			1985 (N = 222)			1986 (N = 84)		
	Mean	S.D.	Median	Mean	S.D.	Median	Mean	S.D.	Median
Extraversion	9.99	2.58	11.0	9.99	2.50	11.0	10.43	2.68	11.0
Neuroticism	6.95	3.79	7.0	6.22	3.80	6.0	6.42	3.60	6.0

Video Scores

	1985 (N = 217)			1986 (N = 84)		
	Mean	S.D.	Median	Mean	S.D.	Median
Extraversion	8.42	2.66	9.0	8.54	2.77	9.0
Neuroticism	5.07	2.71	5.0	4.88	3.19	5.0

APPENDIX G

Video Introduction

The following personality instrument was researched and developed by the Centre for the Study of Mental Retardation. Although the Centre's main emphasis is upon the mentally handicapped, we also have a great interest in both the learning disabled and functionally illiterate populations. Accordingly, the special needs of all three groups were considered during the developmental stages of this innovative form of personality measurement.

Of prime importance in this regard was the comprehensibility level of the test items. Thus, using the Eysenck-Withers Personality Inventory as our base, we undertook the task of revising each question so that it would be more suitable for our target populations. A substantial amount of subject data was then collected on the newly-devised paper and pencil measure, with results indicating that the "normal" personality dimensions of Extraversion and Neuroticism appear to be equally applicable to a mentally handicapped population.

Nonetheless, due to the problems inherent to using paper and pencil measures with those who are mentally handicapped or reading-disabled, it soon became apparent that an alternative form of presentation was necessary. Towards this end, then, we have developed a video version of our personality test.

By having actors portray each item as two opposing types of behavior, and in the context of a familiar ongoing scene, we believe that the clients may more readily be able to identify with the personality characteristics of interest. Through such identification, then, they should also be able to determine which behaviors — and thus, trait aspects — are most indicative of themselves.

The 26 personality scenes, which comprise the video form of the Extraversion and Emotional Stability Scale, will now be presented.

APPENDIX H

"Good" Video Items Based on Factor Analysis*

Neuroticism

Do you find it hard to get to sleep at night because you are worrying about things?

Do lots of things bug you?

Do you often feel fed up?

Are you usually nervous or jumpy?

Do you often feel guilty about things?

Do you often feel lonely?

Do things keep running through your head so that you can't sleep?

Extraversion

Do you usually want exciting things to happen?

Do other people see you as being someone who is always doing lots of things?

Do people think that having you at their party makes it more fun?

Do you like telling jokes or funny stories to your friends?

When you go to a party do you usually have a lot of fun?

* For both Study One and Study Two.

"Good" Video Items Based on Correlational Analysis*

Neuroticism

Do you find it hard to get to sleep at night?

Do you often feel fed up?

Are you usually nervous or jumpy?

Do you often feel lonely?

Extraversion

Are you usually happy and cheerful?

Do you like talking with people?

Do you like going out a lot?

Do people think that having you at their party makes it more fun?

Do you like telling jokes or funny stories to your friends?

When you go to a party do you usually have a lot of fun?

* For both Study One and Study Two.

"Good" Video Items Based on the Prototype Analysis*

Neuroticism

Do lots of things bug you?

Do you often feel fed up?

Are you usually nervous or jumpy?

Do you often feel lonely?

Do you worry about awful things that might happen?

Extraversion

Are you usually happy and cheerful?

Do you usually feel that you can do the things you have to do?

Do you like talking with people?

Do you usually want exciting things to happen?

When you go to a party do you usually have a lot of fun?

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* Where the intended portrayal coincided with the perceived portrayal.